ATTACHMENT 3

SOUTH ORANGE COUNTY IRWM IMPLEMENTATION GRANT PROPOSAL

WORK PLAN

INTRODUCTION

I. Proposal Goals and Objectives

The Goal of the South Orange County Watershed Management Area (WMA) IRWM Implementation Grant Proposal is to meet the goals of the IRWM Plan by implementing the following projects: 1) South Orange County Water Smart Landscape Project lead by the Municipal Water District of Orange County, 2) Rockledge Ocean Protection Project lead by the City of Laguna Beach, and 3) Shadow Rock Detention Basin Project lead by Trabuco Canyon Water District. The County of Orange, Department of Public Works serves as the lead agency representing the overall proposal on behalf of the South Orange County WMA member agencies. The following provides a summary of the Proposal goals and objectives per Project.

1. South Orange County Water Smart Landscape Project (South OC WSL Project).

This Project will be lead by the Municipal Water District of Orange County (MWDOC) in coordination with the nine cities in the South Orange County WMA.

Goals: The goals of this project are: 1) encourage the removal of non-functional turf; 2) upgrade antiquated irrigation timers to weather-based self-adjusting irrigation timers, and 3) conversion of high-volume overhead spray irrigation to low-volume irrigation.

Objectives: The objectives of the project are: 1) Water savings of more than 252 acre-feet per year over the 20-year life of the landscape improvements, 2) Over 50% dry-weather runoff reduction and non-point source pollution reduction, and 3) Reduced maintenance costs on both the landscape itself as well as asphalt street material (just over 84 acres of existing landscape are targeted for improvement through this program).

2. Rockledge Ocean Protection Project

This Project will be lead by the City of Laguna Beach, in coordination with the South Orange County Wastewater Management Authority.

Goals: The goals of this project are: 1) Protect the beneficial uses of the Pacific Ocean by assisting in meeting receiving water objectives, including indicator bacteria, established in the Region 9 San Diego Basin plan and 2) Improve efficiency of the Rockledge sewer lift station.

Objectives: The objectives of the project are: 1) Rebuild cliff top/oceanfront Rockledge sewer lift station, 2) Renovate approximately 1,200 feet of aging sewer lines, and 3) Decrease bacteria levels at marine reserve, which is currently part of the Laguna Beach

State Marine Conservation Area (SMCA) and includes tide pools that are a complete no take zone.

3. Shadow Rock Detention Basin Facility Recovery Project (Shadow Rock Project)

This Project will be lead by Trabuco Canyon Water District in coordination with the City of Rancho Santa Margarita.

Goals: The goals of this project are: 1) Supplement recycled water demands with dry-season flows and 2) Provide increased nutrient removal and assist in managing NPDES permit requirements

Objectives: The objectives of the project are: 1) Modify an existing detention basin for storm water capture with new pump station, 2) Tie-in approximately one hundred feet of new pipeline to the existing pipeline infrastructure, and 3) Capture 77 AF of dry season runoff for reuse.

II. Purpose and Need - Proposal Consistency with Adopted South Orange County IRWM Plan

Located along the scenic and temperate southern coast of California, South Orange County is rich with history. Legacies passed on from native societies, once expansive cattle ranches, and twentieth century entrepreneurial farmers remain a part of the area's culture today. From the landmark Mission San Juan Capistrano near the stunning western coastline to the Cleveland National Forest in the east, South Orange County continues to be a destination known for beauty and a high quality of life.

Water is the key element for sustaining the County and South Orange County economies that allow the region to thrive. Planning and investments to carry the region through the next 25-year planning horizon are critical and are central to preserving the quality of life and planning for water and natural resources.

Reducing runoff and improving the water quality in streams and along the beaches is a key goal for the region. Water quality improvement efforts over the last decade have resulted in significant improvements in coastal water quality along the County beaches. The Heal the Bay 20th Annual Report (2010) states that the County grades for year-round dry weather were among the best on record and well above the state average. Coastal and surface water quality remains an important component of the region's IRWM planning.

The South Orange County Watershed Management Area (WMA) includes the area that encompasses the San Juan Hydrologic Unity (SJHU) in South Orange County, California, as defined in the Water Quality Control Plan of the San Diego Basin (Basin Plan). The SJHU is a collection of coastal watersheds that covers 496 square miles in San Diego, Orange, and Riverside counties. The SJHU is naturally divided by major water bodies and represents an important water resource in one of the most arid regions

of the nation. It is comprised of six major watersheds: 1) Laguna Coastal Streams, 2) Aliso Creek, 3) Dana Point Coastal Streams (Salt Creek), 4) San Juan Creek, 5) San Clemente Coastal Streams, and 6) San Mateo Creek, and two groundwater basins: 1) San Juan Valley Groundwater Basin and 2) San Mateo Groundwater Basin. Refer to Figure 1 – Regional Map – Watershed Management Areas and Watersheds included as Att3_IG1_WorkPlan_2 of 4.

Three counties and several municipalities have jurisdiction over portions of the SJHU. Riverside County includes a small portion (17.8%) of the SJHU, and no municipalities are found within this portion. More than half of the SJHU (51.7%) is located within the County of Orange, and the remainder (30.5%) is in San Diego County. In the County of Orange, the cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano occur within the SJHU. Although a small portion (7.2%) of the SJHU is developed, most of this development is concentrated within the north-western portion of the SJHU. The undeveloped portion, the Southern and interior portions, occupies 91.8% of the SJHU. Agricultural land use occupies less than 1% of the land. A very large and mostly undeveloped portion of the watershed is encompassed by the Camp Pendleton Marine Corps Base in northern San Diego County. Other large areas of open space are found within the Cleveland National Forest. Caltrans is another major landowner, and it has jurisdiction over the major freeways that traverse the watershed.

The South Orange County water supply originates predominately from imported sources, making the region subject to conditions and agencies outside of the region. The South Orange County Integrated Regional Water Management Plan (IRWM Plan) is aimed at diversifying water sources by developing a variety of local opportunities to decrease the reliance on imported sources. For example, the local San Juan Valley Groundwater Basin has been the subject of multiple management programs for treating existing brackish waters and managing wet year supplies for use during dry year conditions; South Orange County is a leader in implementing water recycling projects turning wastewater into a resource; urban water reuse projects are being developed to help reduce runoff and utilize a local resource; and water conservation projects have been a standard for many years including recent programs using weather-based irrigation controllers. Fiscal resources are also needed to improve the water quality in the local streams to protect the beneficial uses that are listed for these water bodies, and to increase where possible local supply through water reclamation, conservation, stormwater capture/treatment, and groundwater and seawater desalination.

The purpose of this Proposal is to help meet the objectives of the South Orange County WMA IRWM Plan to reduce the demand on imported supply and enhance and protect local water resources and ecosystem habitats. The proposed Projects help to meet these objectives.

1. South OC Water Smart Landscape Project

The South OC Water Smart Landscape Project is led by the Municipal Water District of Orange County (MWDOC). As a wholesale water supplier and resource planning agency, MWDOC provides imported water and water conservation measures throughout South Orange County WMA. MWDOC focuses on water supply development, water use efficiency, public information, legislative advocacy, water education, and emergency

preparedness. MWDOC's service area covers all of Orange County, with the exception of the cities of Anaheim, Fullerton, and Santa Ana. Through extensive local water conservation and demand reduction programs, local water supplies meet nearly half of Orange County's total water demand. To meet the remaining demand, MWDOC purchases imported water – from northern California and the Colorado River – through the Metropolitan Water District of Southern California (Metropolitan). MWDOC delivers this water to its 28 client agencies, which provide retail water services to the public.

The Municipal Water District of Orange County (MWDOC) proposes the implementation of a comprehensive landscape improvement program targeting publicly owned and other commercial landscapes properties throughout the South Orange County WMA.

The Project's anticipated water savings of more than 252 acre-feet per year over the 20-year life of the landscape improvements, over 50% dry-weather runoff reduction and non-point source pollution reduction, and reduced maintenance costs on both the landscape itself as well as asphalt street material are greatly needed to meet current state water conservation 20% by 2020 goals and basin plan objectives for water quality of downstream waterways.

The South OC WSL Project is needed in order for South Orange County to continue reducing water demand for irrigation, offsetting imported water supplies, as well as expand weather-based irrigation and drought tolerant landscaping to continue its aggressive water use efficiency program for the region. As the population continues to grow and the imported and local water resources continue to be limited, it is critical that MWDOC continues to incentivize customers and educate the public through water savings programs such as the Water Smart Landscape Project.

2. Rockledge Ocean Protection Project

The Rockledge Ocean Protection Project is needed to improve and replace the City of Laguna Beach's sewer collection system in the Rockledge neighborhood. The project involves replacement of gravity sewer pipes and a sewer force main in addition to sewer lift station improvements. According to the City's Capital Improvement Study conducted in 2001-2, the Rockledge lift station is one of the highest priority lift stations for rehabilitation in Laguna Beach because of its location on bluffs directly above a marine reserve. The marine reserve is currently part of the Laguna Beach State Marine Conservation Area (SMCA), which includes tide pools that are a complete no take zone. The marine area is also a part of the proposed Laguna Beach State Marine Reserve that may go into effect mid 2011.

Sewer spills originating from the Rockledge lift station flow directly into the ocean in the midst of rare, pristine and nearly inaccessible tide pools in a marine protected area. The existing system was built in 1932 and partially upgraded in 1945, 1958, 1961 and 1975. The sewer lines currently vary in pipe materials and diameters and have sharp, angled fittings. The existing lift station is small with only one pump which has caused several sewer spills through the years. A minor slope wash in 2005 exposed and damaged the existing 6" CIP sewer line located in the easement on top of the cliff on the south of the lift station. The City repaired the damaged section of the sewer pipe and lined that segment of the sewer line. The City has also inspected the entire pipeline system, identified and located the cleanouts and house connections to facilitate the project.

Funding constraints have prevented full rehabilitation of the Rockledge system. The proposed Project is needed to protect the surrounding community and Pacific Ocean's beneficial uses from the potential threat of sewage entering the waterways due to decaying infrastructure.

3. Shadow Rock Detention Basin Project

The Shadow Rock Detention Basin Facility Urban Water Recovery Project is needed to enhance the existing detention basin facility to capture low-flow (dry season) runoff for reuse, as well as create a less vector-prone site, increase nutrient removal, assist in meeting the NPDES permit requirements, and enhance the recycled water supply.

The existing Shadow Rock Detention Facility Basin is located in Trabuco Canyon Water District's (TCWD) service area. The Basin has long served to provide flood control and temporary storage of wet weather flows, thus mitigating the impact of storm events to the City of Rancho Santa Margarita's existing storm drain system. However, its remote location and degradation have resulted in the basin becoming a breeding ground for mosquitoes, vectors, and non native vegetation.

In addition, the City of Rancho Santa Margarita, like many other cities, is facing more stringent regulations for reducing and mitigating pollutant loads to its storm drains and its stream beds. Local runoff with measurable amounts of fertilizers, pesticides, and other household pollutants, has led to the current unfavorable condition of the basin. Shadow Rock Detention Basin receives runoff from the Trabuco Highlands community and conveys it to the existing storm drain system. The proposed Project is greatly needed to address the vector, water quality, and water quality issues, as described.

As part of the proposed Project, TCWD and the City of Rancho Santa Margarita will work with the Trabuco Highlands Community Association (THCA) to operate and maintain Shadow Rock Detention Basin to treat and capture low-flow runoff for reuse. TCWD and THCA will modify the existing detention basin to create a less vector-prone site and provide increased nutrient consumption without negatively impacting the current design of the storm drain system and detention basin. Captured dry-season flows will be pumped to a separate existing storm drain located approximately 1,300 feet from Shadow Rock Basin. The dry season flows will then be redirected to Dove Lake, which is a man-made reservoir that TCWD currently utilizes to supplement its reclaimed water demands. The Project's captured dry season flows will be conveyed to the existing recycled water system, which provides recycled water supply to the Santa Margarita Water District.

TCWD's Master Plan findings state that the District should implement significant recycled and reclaimed water programs to reduce reliance on imported domestic water and develop irrigation potential for common area with recycled and reclaimed water. The Project's dry-season flows will supplement recycled water demands by providing 77 AF of recycled water. This Project is needed to fulfill the Master Plan, meet the water conservation goals of the state's 20% by 2020 plan, protect the community from vector prone disease, offset imported water demand, and meet water quality and NPDES permit requirements. In order to complete the Project, funding is needed to modify the detention basin, install a below grade pump, and install and tie-in approximately 100 feet of new pipeline to the existing pipeline infrastructure.

Figure 2 – Regional Map – Project Locations shows the locations of the proposed projects within the South Orange County WMA (included as Att3_IG1_WorkPlan_2 of 4).

Region 9 Basin Plan Consistency

The Region 9 Basin Plan is the Regional Board's plan for achieving the balance between competing uses of surface and groundwaters in the San Diego Region. The Basin Plan establishes or designates beneficial uses and water quality objectives for all the ground and surface waters of the Region. The South Orange County IRWM Plan applies the Basin Plan objectives related to beneficial uses and includes water quality (WQ), groundwater (GW), and flood management (FM) objectives. This South Orange County WMA IRWM Implementation Grant Proposal is consistent with the San Diego Region 9 Basin Plan by implementing the IRWM Plan objectives and protecting beneficial uses of the waterways in the WMA. Refer to Figure 3 – Regional Map – Groundwater Basins and Figure 4 – Regional Map – Surface Water Bodies included in Att3_IG1_WorkPlan 2 of 4.

The South Orange County WMA includes the area that encompasses the San Juan Hydrologic Unit (SJHU) in South Orange County, California, as defined in the San Diego Basin Plan. The proposed projects are needed to protect the watersheds within the SJHU and comply with the Basin Plan. Each watershed and associated Basin Plan objectives that are consistent with this Proposal are discussed below:

Aliso Creek Watershed

The Aliso Creek Watershed covers 30.4 square miles, and its main tributary, Aliso Creek, originates in the Santa Ana Mountains inside the boundaries of the Cleveland National Forest. The watershed includes portions of the cities of Aliso Viejo, Laguna Beach, Laguna Hills, Laguna Niguel, Lake Forest, Mission Viejo and unincorporated County of Orange.

Aliso Creek falls under the Laguna subunit of the San Juan Hydrologic Basin (designated Hydrologic Sub Area 1.13). The Basin Plan lists the English Canyon, Sulphur Creek, and Wood Canyon tributaries to Aliso Creek as receiving waters. The following existing beneficial uses are designated in the Basin Plan for the Aliso Creek watershed: agricultural supply; contact water recreation; non-contact water recreation; warm freshwater habitat; and wildlife habitat. The following designations apply to the mouth of Aliso Creek: contact water recreation; non-contact water recreation; wildlife habitat, rare, threatened, or endangered species; and marine habitat.

As outlined in the Aliso Creek Watershed Management Plan, the watershed suffers from a number of problems related to water resources.[1] The identified problems are grouped in four general categories: creek instability, water quality, loss of fish and wildlife habitat, and flooding damages.

[1] County of Orange. Aliso Creek Watershed Plan. 12/20/04. Online: http://www.ocwatersheds.com/AlisoCreek_ReportsStudies.aspx

Watershed management has become necessary in order to decrease negative impacts of human activities and to increase the positive impacts. Economic resources are necessary to enable the community to address and solve resource problems such as nonpoint source pollution. Establishment of a goal-oriented management program can prevent problems before they occur and will result in less expensive and more efficient use of community energy. Efforts to accomplish needed improvements will include programs to reach several listed objectives of the plan.

These objectives are measurable milestones that will enable the community to track progress toward maintaining a natural balance in watershed resources. Most of the objectives promote and encourage practices and behaviors that support development of a healthy environment for the watershed. Education is therefore a major component of this management program, as well as enhanced public outreach to promote a more complete understanding of the environmental problems and the ecological value of the Aliso Creek Watershed.

As a regional project, the South Orange County Water Smart Landscape Project will assist in meeting the water conservation and quality goals of all the watersheds throughout the region. The Project's goals and objectives assist in meeting several objectives of the Aliso Creek Watershed Plan. Specifically, the Project will meet water quality goals by establish a regional landscape transformation from turf intensive landscapes to California Friendly landscapes that emphasize plantings that have water needs similar to our natural rainfall or 12 inches of precipitation per year. The Project will meet public education goals by incorporating signage at project locations in highly visible landscapes along major streets that have non-functional turf such as street medians, intersections, and sidewalk buffers.

Verification of project benefits will be measured through a statistical water savings evaluation. This evaluation will include a robust, regression based, statistical evaluation of water use before and after the landscape improvements. Working with local water districts, MWDOC will obtain water use information for participating sites for inclusion in the evaluation. The positive impacts of the Project will be carefully documented for credit in contributing to meeting basin plan objectives.

Dana Point Coastal Streams Watershed

The Dana Point Coastal Streams Watershed covers six square miles. The main tributary of the Dana Point Coastal Streams watershed is Salt Creek, which ultimately drains into the Pacific Ocean near the northern boundary of the City of Dana Point. Dana Point Harbor is also located within this watershed.

Dana Point Coastal Streams falls under the Laguna subunit of the San Juan Hydrologic Basin (designated Hydrologic Sub Area 1.14). In addition to the primary Salt Creek, the Basin Plan lists San Juan Canyon and Arroyo Salado as receiving waters. The following existing beneficial uses are designated in the Basin Plan for Salt Creek, San Juan Canyon, and Arroyo Salado: agricultural supply; non-contact water recreation; warm freshwater habitat; and wildlife habitat. The potential beneficial use of contact water recreation is also designated in the Basin Plan for Salt Creek, San Juan Canyon, and Arroyo Salado.

The following existing beneficial uses are designated in the Basin Plan for Dana Point Harbor: contact water recreation; non-contact water recreation; commercial and sport fishing; industrial service supply; marine habitat; migration of aquatic organisms; navigation; rare, threatened or endangered species habitat; shellfish harvesting; spawning; reproduction and early development habitat; and wildlife habitat.

Priority concerns for the watershed are poor water quality affecting Salt Creek Beach and Baby Beach, and nuisance flows and environmental issues at the Dana Point Harbor.

As a regional project, the South Orange County Water Smart Landscape Project will assist in meeting the water conservation and quality goals of all the watersheds throughout the region. The Project's goals and objectives assist in meeting several objectives of the Dana Point Coastal Streams Watershed. By containing and treating runoff, less pollution will make its way downstream towards the beach into watersheds such as the Dana Point Coastal Streams. The poor water quality affecting Salt Creek Beach and Baby Beach are concerns related to inland runoff. The South OC WSL Project will assist in reducing overall runoff and nuisance flows.

In addition the Rockledge Ocean Protection Project in the coastal area of City of Laguna Beach will assist in protecting the beneficial uses of the Pacific Ocean along the South Orange County WMA coastline. Reducing the potential for sewer spills into the ocean significantly contributes to meeting the basin plan objectives for this watershed.

The Shadow Rock Detention Basin in Trabuco Canyon Water District's service area will also reduce downstream nuisance flows by capturing and treating low flow runoff.

Laguna Coastal Streams Watershed

The Laguna Coastal Streams Watershed is approximately 11 square miles and includes portions of the cities of Aliso Viejo, Laguna Beach, and Laguna Woods. It consists of the Laguna Canyon Creek watershed which runs north to south, directly through the middle of this watershed, and discharges into the Pacific Ocean in Laguna Beach. Several other smaller watersheds, including Boat Canyon, Blue Bird Canyon, Rim Rock Canyon, and Hobo Canyon, also drain portions of these cities. This watershed is bound on the west by Emerald Canyon and on the east by the Aliso Creek watershed. The remaining undeveloped areas are largely within the Laguna Coast Wilderness Park and the Aliso and Wood Canyons Regional Park.

Laguna Coastal Streams falls under the Laguna subunit of the San Juan Hydrologic Basin (designated Hydrologic Sub Area 1.12). In addition to Laguna Canyon Creek, the Basin Plan lists Boat Canyon, Laguna Canyon, Blue Bird Canyon, Rim Rock Canyon, and Hobo Canyon as receiving waters discharging to the Pacific Ocean. These receiving waters offer several beneficial uses, including agricultural supply, non-contact and contact water recreation, warm freshwater habitats, and wildlife habitats.

The Laguna Coastal Streams Watershed is within the jurisdiction of the SDRWQCB (Region 9). The Heisler Park Ecological Reserve is an Area of Special Biological Significance (ASBS) located in this watershed, and protection of the reserve is underway

through stringent coastal planning efforts between the City of Laguna Beach, City of Newport Beach, Irvine Company, the County of Orange, California State Parks, and Caltrans.

To further protect the resources and beneficial uses in this watershed, the Rockledge Ocean Protection Project is proposed as part of this proposal. The Rockledge sewer station, built more than thirty years ago, represents a significant threat to ocean water quality due to the threat of systems failure and a sewage spill. Polluted sewer water flowing untreated into the ocean impacts all beneficial uses of the Laguna Beach coastline.

Replacing the deteriorating Rockledge sewer system located above a protected marine tide pool zone will significantly reduce bacteria count in the watershed and assist protecting the beneficial uses of the watershed and Pacific Ocean. The Rockledge Ocean Protection Project will reduce the amount of indicator bacteria found in the adjacent beach zone within the City of Laguna Beach. The project will help meet receiving water objectives established in the Region 9 San Diego Basin plan as well as indicator bacteria objectives established in the Region 9 Beaches and Creeks Bacteria TMDL.

San Juan Creek Watershed

The San Juan Creek Watershed is the largest watershed in the South Orange County WMA. The approximately 173 square mile watershed includes portions of the cities of Dana Point, Laguna Hills, Laguna Niguel, Mission Viejo, Rancho Santa Margarita, San Juan Capistrano and unincorporated areas within the County. The Arroyo Trabuco and Oso Creeks are smaller tributaries. A small western portion of the San Juan Creek Watershed extends into Riverside County. The Creek ultimately discharges into the Pacific Ocean at Doheny Beach.

San Juan Creek falls under the Mission Viejo subunit of the San Juan Hydrologic Basin (designated Hydrologic Sub Area 1.21-1.28). The Basin Plan lists Bell Canyon Creek, Cañada Gobernadora, Arroyo Trabuco (Trabuco Creek), and Oso Creek tributaries to San Juan Creek as receiving waters. The following existing beneficial uses are designated in the Basin Plan for San Juan Creek, Morrell Canyon, Decker Canyon, Long Canyon, Lion Canyon, Hot Spring Canyon, Cold Spring Canyon, Lucas Canyon, Aliso (not Creek) Canyon, Verdugo Canyon, Bell Canyon, Fox Canyon, Dove Canyon, Crow Canyon, Trampas Canyon, Cañada Gobernadora, Cañada Chiquita, Horno Creek, Trabuco (Arroyo Trabuco) Creek, Holy Jim Canyon, Falls Canyon, Rose Canyon, Hickey Canyon, Live Oak Canyon, Tijeras Canyon, Oso Creek, and La Paz Creek: agricultural supply; cold freshwater habitat; industrial; contact water recreation; non-contact water recreation; spawning habitat; warm freshwater habitat; and wildlife habitat. The following designations apply to the mouth of San Juan Creek: rare, threatened, or endangered species; non-contact water recreation; marine habitat; migratory habitat; shellfish habitat; and wildlife habitat.

MWDOC's South OC WSL Project will help protect the beneficial uses of downstream waters in the San Juan Creek Watershed by reducing the amount of urban runoff and pollution entering the waterways through removing hardscape and replacing it with

California friendly landscape that will absorb and naturally treat runoff as it infiltrates into the soil.

TCWD's Shadow Rock Detention Basin Project's basin modifications will result in significantly improving the quality of water flowing through the basin and will increase pollutant removal. The Project will recover runoff for reuse in recycled water system, design a detention basin for storm water capture with new pump station, remove non-native plant growth, capture runoff from the watershed, convey treated runoff to the recycled water system, and store excess runoff in the lake or divert for use in neighboring recycled water system. This will provide treatment of urban runoff and protect downstream waters, contributing to meeting the Basin Plan objectives.

San Clemente Coastal Streams Watershed

The San Clemente Coastal Streams Watershed is approximately 18 square miles and includes portions of the cities of San Clemente, San Juan Capistrano and Dana Point. Prima Deshecha Canada is one of two main streams that flow through the City of San Clemente, ultimately discharging into the Pacific Ocean at Poche Beach. The Prima Deshecha discharges into the Pacific Ocean at Poche Beach. The Segunda Deshecha Canada, the second main stream draining the watershed, discharges into the Pacific Ocean at North Beach.

San Clemente Coastal Streams falls under the San Clemente subunit of the San Juan Hydrologic Basin (designated Hydrologic Sub Area 1.31 and 1.32). The Basin Plan lists Prima Deshecha Canada and Segunda Deshecha Canada as receiving waters. The following existing beneficial uses are designated in the Basin Plan for the receiving waters listed above: agricultural supply; contact water recreation; non-contact water recreation; warm freshwater habitat; and wildlife habitat.

Poche Beach is located at the mouth of the Prima Deshecha Canada Channel and lies on the border between the cities of Dana Point and San Clemente. The beach has been routinely posted for exceedances of fecal indicator bacteria standard when tested in the surf zone. The Heal the Bay 2009-2010 Annual Report lists Poche Beach on its Beach Bummers list. A dry weather filtration/UV disinfection plant at the Poche Creek outlet was completed in 2009 and is currently undergoing performance testing.

The South OC WSL Project will regionally assist in enhancing the water quality of beaches. Landscape irrigation is the largest demand on MWDOC's system in the South Orange County WMA. Therefore, reducing the amount of urban runoff carrying pollutants to the beaches, the Project will meet the beneficial uses of the San Clemente Coastal Streams Watershed.

San Clemente Coastal streams watershed is downstream from the Laguna Beach Coastal Streams Watershed, and therefore projects implemented in Laguna Beach will assist in meeting basin plan objectives in downstream watersheds. The Rockledge Ocean Protection Project will help protect the beneficial uses of this watershed, as listed above.

San Mateo Creek Watershed

Most of San Mateo Creek and its outlet to the Pacific Ocean, at San Onofre State Beach, are actually located in San Diego County. The San Mateo Creek Watershed within the County of Orange is largely unincorporated territory under the jurisdiction of the County. It covers approximately 20 square miles of southeastern County including portions of the City of San Clemente in its downstream-most area.

San Mateo Creek falls under the San Mateo Canyon subunit of the San Juan Hydrologic Basin (designated Hydrologic Sub Area 1.40). The Basin Plan lists San Mateo Creek and its mouth as receiving waters. There are both existing and potential beneficial uses as described in the Basin Plan for the San Diego Basin. The following existing potential beneficial uses are designated in the Basin Plan for the receiving waters listed above: cold water habitat; rare species habitat; contact water recreation; non-contact water recreation; spawning habitat; warm water habitat; and wildlife habitat.

The South OC WSL Project, Rockledge Ocean Protection Project, and Shadow Rock Detention Project collaboratively work to reduce the overall runoff in the San Mateo Creek and other watersheds in the SJHU. The cohesive approach to these 3 projects is consistent with the basin plan in protecting beneficial uses and meeting the Basin Plan objectives.

As demonstrated, the proposed Projects within this proposal are consistent with the San Diego Basin Plan objectives for protecting beneficial uses of the waterways (and watersheds) throughout the South Orange County WMA. As a regional project, the South Orange County Water Smart Landscape Project locations are in all watersheds throughout the region. The Rockledge Ocean Protection Project is located in the Laguna Coastal Streams Watershed. The Shadow Rock Detention Basin is located in the San Juan Creek Watershed. Collectively, the Projects will protect the South Orange County WMA's precious water resources for the greater San Diego Region.

The Projects will protect the water resources of the region, which are predominantly used by members of disadvantaged communities (DAC's) from adjacent regions. Figure 5 – Regional Map – Disadvantaged Communities shows these DACs and is included as Att3_IG1_WorkPlan_2 of 4. Collectively, the projects help meet the needs of adjacent DACs who use the waterways and beaches throughout the South Orange County WMA.

Adopted IRWM Plan Goals:

The South Orange County IRWM Plan established goals and objectives. The Projects proposed within this Proposal are consistent with the adopted IRWM Plan, went through the IRWM Project review process, and will be included in the revised IRWM Plan Update once complete. Each project provides a means to meet the IRWM Plan goals and objectives. The table below includes the Adopted IRWM Plan Goals:

IRWM Plan Goals

Water Supply

» Reduce reliance on imported water
» Improve water reliability
» Increase local water supply
» Provide new and reliable sources for recycled water uses

» Convey the most recycled water to the most customers for the least cost » Provide a new source for basin recharge » Divert, capture and treat urban runoff for reuse
Water Quality » Maximize the infiltration of runoff in landscape areas » Reduce nuisance runoff » Reduce water currently being discharged to the Ocean through recycling and re-use » Reduce non-point source pollution loads » Filter storm water flows to remove gross pollutants » Improve surface water quality throughout the seven regional watersheds to reduce pollutants and assist in meeting the goals of Bacteria TMDL for Beaches and Creeks of the Region
Water Conservation » Water conservation through a controlled and efficient irrigation system design
Aquatic Ecosystems and Watershed Management » Protect beneficial uses » Protect and improve ecological resource areas, creeks and the coastline » Environmental restoration » Provide for fish passage » Reduce excess erosion of the coastal bluff area in Laguna Beach » Reduce the amount of days the beach is posted » Reduce bacteria loading to the Region's beaches and creeks from the seven watersheds of the Region to comply with the Bacteria TMDL for Beaches and Creeks of the Region
Sewage and Flood Management » Divert non-storm runoff » Increase capacity at wastewater treatment plants » Reduce the amount of secondary treated effluent going into the Ocean » Improve Ocean water quality » Protect existing utilities in Aliso Creek

Adopted IRWM Plan Objectives:

In order to address the major water challenges within the region, key objectives were compiled in the following categories:

1. Water Supply (WS)
2. Groundwater Management (GM)
3. Aquatic Ecosystems and Watershed Management (AE)
4. Water Conservation (WC)
5. Water Quality (WQ)

6. Sewage and Flood Management (SF)
7. Information Management (IF)

The IRWM Plan objectives that the Proposal is consistent with include the following:

Objective WS-1: Diversify the mix of water supplies to meet South Orange County's needs.
Objective WS-2: Improve South Orange County system reliability.
Objective WS-3: Reduce the vulnerability of water supply systems to drought.
Objective WS-4: Ensure that appropriate levels of investments are made to meet water supply, water system and water quality objectives.
Objective GM-2: Protect groundwater from contamination.
Objective WC-1: Reduce current water demand by 9,700 AF increasing to more than 19,600 AF in 2030 through implementation of Best Management Practices water use efficiency measures.
Objective AE-1: Optimize the healthy functioning of regional aquatic ecosystems.
Objective WQ-1: Protect the quality of surface and ground waters, consistent with their beneficial uses.
Objective SF-1: Optimize capacity and reliability of sanitary and stormwater management systems.
Objective SF-2: Optimize handling of sanitary and stormwater wastes to minimize environmental and socioeconomic impacts.
Objective IF-2: Develop and implement public education programs and opportunities as appropriate to support the goals of the IRWM Plan.

The following provides an overview of each Proposal Projects' consistency with the IRWM Plan Goals and Objectives.

1. South Orange County Water Smart Landscape Project

The Municipal Water District of Orange County (MWDOC) proposes the implementation of a comprehensive landscape improvement program targeting publicly owned and other commercial landscapes properties throughout the South Orange WMA.

The Project is consistent with the IRWM Plan Goals of Water Supply, Water Quality, Water Conservation, Aquatic Ecosystems and Watershed Management, and Sewage and Flood Management by implementing the following project components:

- Establish a regional landscape transformation from turf intensive landscapes to California Friendly landscapes that emphasize plantings that have water needs similar to our natural rainfall or 12 inches of precipitation per year.
- Focus on highly visible landscapes along major streets that have non-functional turf such as street medians, intersections, and sidewalk buffers.
- Sites will serve to demonstrate California Friendly landscapes to the general public.
- Signage will be placed at each project site to educate the public about the landscape improvements along with benefits that will be realized. This

signage will be viewed by all passersby of each project, which is anticipated to be thousands of people per day.
- Verification of project benefits will be measured through a statistical water savings evaluation. This evaluation will include a robust, regression based, statistical evaluation of water use before and after the landscape improvements. Working with local water districts, MWDOC will obtain water use information for participating sites for inclusion in the evaluation.

The following describes how the Project is consistent with the IRWM Plan objectives:

- WS-1,2,3,&4: Water Supply, Water Quality, Water Use Efficiency, Reliability, Water Reuse and Urban Runoff:

  - Diversify the mix of water supplies to meet South Orange County's needs through Water Use Efficiency efforts.
  - Improve South Orange County System Reliability to enable the local agencies to provide sufficient water supplies to their customers
  - Reduce the vulnerability of water supply systems to droughts.

- AE-1: Regional Aquatic/Riparian Ecosystems and Watershed Management

  - Ensure that an appropriate and balanced level of investment is made to meet water supply, water system and water quality objectives
  - Optimize the healthy functioning of regional aquatic ecosystems, consistent with recreational needs and socioeconomic and infrastructural constraints

- WC-1: Water Conservation - Water Conservation plan, Drought Preparedness, and Landscape Water Use Efficiency

  - Reduce water demand to meet the Governor's call for 20% by 2020 through the implementation of Best Management Practice water use efficiency measures.
  - Promote the use and/or retrofitting of Weather Based Irrigation Timers in new and existing single-family homes and commercial landscapes.
  - Promote the use and/or retrofitting of irrigation system distribution uniformity improvements in new and existing developments.
  - Promote the use of native or non-native drought-tolerant low-water-use plants for landscaping in new developments and for retrofitting existing high-water use landscaping.
  - Promote the use of alternative landscape design features including permeable inert surfacing materials in lieu of high-water-use landscape ground covering plants in new developments and for retrofitting existing landscaping.

- WQ-1: Water Quality – Surface and Groundwater

  - Protect the quality of surface and groundwaters, consistent with their beneficial uses.

  - Promote the utilization of structural Best Management Practices, appropriate to land use type, to eliminate nuisance runoff and reduce the discharge of pollutants from municipal storm drain systems into downstream aquatic ecosystems, during both wet and dry weather.

- SF-1, SF-2: Flood Management – Flood Preparedness, and Promoting Flood Management

  - Promote the region-wide utilization of non-structural Best Management Practices, appropriate to non-point-source pollutants and land use types, to prevent potential pollutants from entering municipal storm drain systems and aquatic ecosystems, during both wet and dry weather.
  - Promote the installation and application of nuisance water diversions when determined to be an effective solution to impairments downstream.

- IF-2: Information and Data Management, Community Integration, Climate Change.

  - Promote the use of Geographic Information Systems, databases and other data management tools in support of IRWM Plan goals.
  - Promote scientific research, technological development, and investigative studies as needed to support IRWM Plan goals.
  - Promote public education programs and opportunities as appropriate to support the goals of the IRWM Plan.
  - Promote professional, worker and student educational opportunities as appropriate to support the goals of the IRWM Plan.
  - Promote informational programs for elected officials and regulatory personnel as appropriate to support the goals of the IRWM Plan.

2. Rockledge Ocean Protection Project

The City of Laguna Beach proposes the Rockledge Ocean Protection. This project protects the beneficial uses of the Pacific Ocean by replacing aging sewer infrastructure to prevent sewer spills into protected marine ecosystems. The project also reduces pollution generation by improving efficiency of the lift station. The Rockledge sewer station, built more than thirty years ago, represents a significant threat to ocean water quality due to the threat of systems failure and a sewage spill. Polluted sewer water flowing untreated into the ocean impacts all beneficial uses of the Laguna Beach and ocean coastline. The project will help meet receiving water objectives established in the Region 9 San Diego Basin plan as well as indicator bacteria objectives established in the Region 9 Beaches and Creeks Bacteria TMDL.

The Project is consistent with the IRWM Goals of Water Supply, Water Quality, Water Conservation, Aquatic Ecosystems and Watershed Management, and Sewage and Flood Management by implementing the following project components:

- Protects the beneficial uses of the Pacific Ocean

- Replaces aging sewer infrastructure to prevent sewer spills into protected marine ecosystems.
- Reduces pollution by improving efficiency of the sewer lift station.

The Project is consistent with the IRWM Plan objectives by implementing the following objectives, as described below:

- WQ-1: Protect beneficial uses of receiving waters
  - Reduce threat of polluted sewer water flowing untreated into the ocean impacts all beneficial uses of the Laguna Beach and ocean coastline.
  - Help meet receiving water objectives established in the Region 9 San Diego Basin plan

- GM-2: Protect groundwater from contamination.
  - Reduce threat of sewer system failure and a sewage spill.

- AE-1: Optimize the healthy functioning of regional aquatic ecosystems.
  - Help meet indicator bacteria objectives established in the Region 9 Beaches and Creeks Bacteria TMDL.

- SF-1: Increase wastewater pumping and treatment capacity to accept elevated flows from new storm drain diversions and other sources.
  - Helps meet projected increase in capacity by 2030.

- SF-2: Increase Pumping Efficiency:
  - Reduce energy consumption and greenhouse gas emissions by implementing projects which improve water and wastewater pumping efficiency.
  - Reduce the energy consumption of water management practices by 20% by 2020.

3. Shadow Rock Detention Basin Project

The Trabuco Canyon Water District proposes the Shadow Rock Detention Basin Project to construct a pump station and modify an existing detention basin to capture dry season runoff for reuse. TCWD's existing basin stores water that becomes stagnant and has minimal movement of water throughout the basin. The proposed Project's basin modifications will result in significantly improving the quality of water flowing through the basin and will increase pollutant removal. The Project will recover runoff for reuse in the recycled water system, design a detention basin for storm water capture with new pump station, remove non-native plant growth, capture runoff from the watershed, convey treated runoff to the recycled water system, and store excess runoff in the lake or divert for use in neighboring recycled water system.

The Project is consistent with the IRWM Plan Goals of Water Supply, Water Quality, Water Conservation, Aquatic Ecosystems and Watershed Management, and Sewage and Flood Management by implementing the following project components:

- Recovers runoff for reuse in recycled water system.

- Detention basin designed for storm water capture with new pump station.
- Recover runoff for reuse in recycled water system,
- Remove non-native plant growth
- Capture runoff from the watershed
- Convey treated runoff to the recycled water system,
- Store excess runoff in the lake or divert for use in neighboring recycled water system.

The Project is consistent with the IRWM Plan objectives by implementing the following objectives, as described below:

- WS-1,2,3,&4: Water Supply, Water Quality, Water Use Efficiency, Reliability, Water Reuse and Urban Runoff
  - Captured runoff will be treated and conveyed for reuse through the recycled water system with a corresponding reduction in potable water used for landscape irrigation.
  - A measurable amount of runoff flows into the existing basin on a daily basis and will be processed through the existing recycled water system.
  - Helps South Orange County WMA meet its reduced allocation of imported water during drought and normal years.
  - The Project is part of Trabuco Canyon Water District's Master Plan for capture, treatment and reuse of dry season runoff in an effort to help the district and the region achieve its objectives for increased recycled water.

- WC-1: Decrease current water demand
  - Decrease demand on imported and local potable water supplies used for landscape irrigation.

- AE-1: Optimize the healthy functioning of regional aquatic ecosystems
  - Implementation of urban runoff BMPs to reduce impact to receiving waters and protection of the environmental quality of riparian ecosystems.
  - Implement vector control measures.

- WQ-1:Protect the quality of surface waters
  - Modifications to the detention basin will provide capacity for pollution control, nutrient removal, and significant reduction of urban pollutant loads to creek beds.

- SF-1: Optimize capacity and reliability of stormwater management systems.
  - Improves flood management, enhance/sustain ecosystems

- SF-2: Increase Pumping Efficiency and Reduce Energy Use
  - Offset energy costs associated with delivery of imported water to one of the highest elevations in South Orange County WMA.

III. Project List

The table below includes the project proposed as part of the South Orange County WMA IRWM Implementation Grant Proposal.

Table 2 South Orange County IRWM Proposal Projects

Proposal Project Title and Priority	Implementing Agency	Project Abstract	Status of Implementation / Percent Completion of Design
1. South Orange County Water Smart Landscape Project	Municipal Water District of Orange County (MWDOC) (in partnership with 9 cities in South Orange County)	Project proposes the implementation of a comprehensive landscape improvement program targeting publicly owned and other commercial landscapes properties throughout the South Orange County Integrated Regional Water Management Plan area. The program will encourage the removal of non-functional turf; upgrade antiquated irrigation timers to weather-based self-adjusting irrigation timers, and conversion of high-volume overhead spray irrigation to low-volume irrigation. These improvements will result in water savings, reduction of dry-weather runoff, pollution prevention, and reduced maintenance costs. More than 84 acres of existing landscape are targeted for improvement through this program. Expected water savings total more than 252 acre-feet per year or 5,040 acre-feet over the 20-year life of the landscape improvements. Dry-weather runoff reduction and non-point source pollution reduction are anticipated to be greater than 50% as was documented in MWDOC's Residential Runoff Reduction Study (2004). The proposed program is designed to begin establishing a landscape transformation from turf intensive landscapes to educational California Friendly landscapes. A Rebate Program format will be utilized to incentivize landscape improvements in cooperating cities.	This project does not require design development. This project is an implementation project for existing and developing Urban Areas and includes purchase and installation of landscape irrigation and plant material improvements on urban landscapes. MWDOC, retail water agencies, and cities have gained considerable experience implementing a similar county-wide SmarTimer controller project and are ready to proceed. Upon award MWDOC will submit a categorical exemption – Class 1, Section 15301 – Existing Facilities. Project ready to proceed upon grant award.
2. Rockledge Ocean Protection Project	City of Laguna Beach	The Project will rebuild clifftop/oceanfront sewer system in the Rockledge neighborhood in the City of Laguna Beach. The Project involves replacement of aging gravity sewer pipes and a sewer force main in addition to sewer lift station improvements. The Rockledge lift station is located on top of a bluff overlooking the Pacific Ocean. Sewer spills originating from the Rockledge lift station flow directly into a rare, pristine and nearly inaccessible tide pools within a marine protected area. The marine reserve is currently part of the Laguna Beach State Marine Conservation Area (SMCA), which includes tidepools that are a complete no-take zone. The Marine Protection Area (MPA) is also a part of the proposed Laguna Beach State Marine Reserve that may go into effect mid 2011. As part of the City of Laguna Beach's Capital Improvement Study conducted in 2001-2002, all of the pipelines citywide were inspected and ranked for repair priority and the Rockledge sewer system is one of the highest priority lift stations for rehabilitation. The Project will help meet receiving water objectives established in the Region 9 San Diego Basin plan as well as indicator bacteria objectives established in the Region 9 Beaches and Creeks Bacteria TMDL.	CEQA is complete (Categorical Exemption). 90% Design phase is completed. Proceeding with 100% design and specifications. Ready to proceed with bid and award and construction phase upon grant award.

Proposal Project Title and Priority	Implementing Agency	Project Abstract	Status of Implementation / Percent Completion of Design
3. Shadow Rock Detention Basin Facility Urban Water Recovery (Shadow Rock Detention Basin) Project	Trabuco Canyon Water District (in partnership with the City of Rancho Santa Margarita)	The Project will construct a pump station and modify existing detention basin to capture dry season runoff for reuse for irrigation. The existing Shadow Rock detention basin captures runoff from the Trabuco Highlands community (in the City of Rancho Santa Margarita) and conveys it to an existing storm drain facility. The project will re-design the detention basin to recover dry-season runoff and convey and store excess runoff in the existing Dove Lake for reuse in neighboring recycled water system. The Project will yield 77 AF of water a year. The proposed improvements would create a less vector-prone site, increase nutrient removal, assist in meeting the NPDES permit requirements, and enhance the recycled water supply. The Santa Margarita Water District is a user of TCWD's recycled water system, and therefore, the supplemental recycled water supply will benefit their service area as well. TCWD has an agreement with the Trabuco Highlands Community Association (THCA) to operate and maintain Shadow Rock Detention Basin for the community.	CEQA is complete (mitigated negative declaration completed August 16, 2006). Preliminary design is complete (for the pipeline construction, pump station, and basin modifications is complete). Installation of pipeline for conveyance of captured water is complete. Project is ready to proceed with design, bid and award, and construction upon grant award.

IV. Integrated Elements of Projects

The South Orange County WMA considered each project for its multiple benefits, diversity of participants, regional impact and synergies or linkages to other projects. Each project in this Proposal contains multiple elements, which result in tremendous added value for the WMA. Figure 2, included as Att3_IG1_WorkPlan 2 of 4, shows the project location linkages throughout the South Orange County WMA. Beyond the geographical linkages, the Projects share synergistic benefits to achieve total watershed efficiency. The result of the IRWM Implementation Grant Proposal is a suite of projects that integrate and coordinate efforts for multiple benefits and added value. The Proposed Projects demonstrate an integrated project implementation approach, which provides greater value as a regional planning tool and offers greater advantages than individual efforts due to its ability to create project linkages, incorporate multiple strategies, and leverage agency resources.

1. South OC Water Smart Landscape Project

The South OC Water Smart Landscape Project integrates implementation of small-scale water conservation and water quality/pollution reduction retrofitting efforts, including publicly owned and other commercial landscape property conversion to lower impacts on water supply and runoff quality. The Project will be lead by the Municipal Water District of Orange County (MWDOC) in a coordinated effort with the WMA project partners to implement the multiple elements of the Project, which provides tremendous added value. Project partners are throughout the WMA and include the cities where irrigation retrofitting and landscape conversions will occur. Letters of Support by the participating cities are included in Att3_IG1_WorkPlan_2 of 4. MWDOC staff and the Natural Resource Conservation Service will perform the Installation Inspection, Irrigation System Evaluation, and Irrigation System Repair Inspections; and the education staff of MWDOC will provide Landscape Irrigation Management Education programs to all project participants in both English and Spanish. The Project will integrate multiple benefits to a significant part of the region upon implementation, including conservation of potable water supplies and reduction of irrigation runoff and non-point source pollutants, thereby stretching existing water supplies, enhancing water quality, and improving the overall watershed and coastline ecosystem health.

MWDOC's Water Smart Landscape Project will help control runoff flows to all watersheds throughout the South Orange County WMA. Therefore, MWDOC's efforts to reduce runoff to the ocean, which carries nutrients and bacteria, are integrated with the water quality improvement and protection goals of the Rockledge Ocean Protection Project (located in the Laguna Coastal Streams Watershed) and the Shadow Rock Detention Basin projects (located in the San Juan Creek Watershed).

2. Rockledge Ocean Protection Project

The Rockledge Ocean Protection Project is a multi-benefit project that proposes to improve and replace the City of Laguna Beach's sewer collection system. This specific system is responsible for carrying the City's sewer flow from the Rockledge neighborhood prior to discharging into the Pacific Ocean. Rockledge is one of the highest priority lift stations for rehabilitation in Laguna Beach according to the City's

Capital Improvement Study conducted in 2001-2 because of its location on bluffs directly above a marine reserve that is currently part of the Laguna Beach State Marine Conservation Area (SMCA), which includes tidepools that are a complete no-take zone. The marine area is also a part of the proposed Laguna Beach State Marine Reserve that may go into effect mid 2011.

Located in one of the coastal communities within the South Orange County WMA, the Project is integrated into the region by serving as one of the sewer outfall systems into the Pacific Ocean. Sewer spills originating from the Rockledge lift station flow directly into the ocean in the midst of rare, pristine and nearly inaccessible tide pools in a marine protected area. Failure of the existing lift station has caused several sewer spills throughout the years. The Project will benefit water quality in a 303(d) listed water body by preventing failure related sewer spills and eliminating pipe joint seepage. The Project will help meet beneficial uses for the Laguna Coastal Streams Watershed and is therefore, integrated into the success of the WMA meeting the San Diego Region Basin Plan indicator bacteria objectives.

The Project includes rehabilitating 1200 feet of sewer pipe and an aging lift station. The lift station is connected to the South Orange County Wastewater Authority (SOCWA) and is in turn integrated into the regional wastewater system. SOCWA is a member of the South Orange County IRWM Group. The Project integrates sewer management for the region, and the City of Laguna Beach will work directly with the South Orange County Wastewater Authority for Project implementation.

3. Shadow Rock Detention Basin Project

The Shadow Rock Detention Basin Project is integrated into the region by providing multiple benefits including water supply, water quality, and water conservation components. TCWD will work with the City of Rancho Santa Margarita and the Trabuco Highlands Community Association (THCA) to implement the project. Modifying the basin to capture dry season flows will address water quality protection requirements of the San Juan Watershed, as set forth by the NPDES permit and Basin Plan Objectives. Continued discharge of dry season runoff could potentially exceed local NPDES limits. The Project integrates urban runoff, storm flows, and non-point pollution in the local waterways and the Pacific Ocean, and complements the South OC WSL Project and the Rockledge Ocean Protection Project in this regard.

The Project will help the South Orange County WMA meet its reduced allocation of imported water during drought and normal years. The Santa Margarita Water District is a user of TCWD's recycled water system, and therefore, the supplemental recycled water supply will directly benefit their service area. TCWD has an agreement with the Trabuco Highlands Community Association (THCA) to operate and maintain Shadow Rock Detention Basin for the community.

The Project is included in TCWD's master plan for capture, treatment and reuse of dry season runoff in an effort to help the district and the region achieve its objectives for increased recycled water and decreased potable water currently used for landscape irrigation. The Project will also offset the energy costs for delivering imported water to one of the highest elevations in the South Orange County WMA. This greatly assists in MWDOC's distribution of imported water throughout the South Orange County WMA.

The Project protects the San Juan Watershed and therefore, assists in downstream watershed protection for the rest of the WMA, including the Rockledge Ocean Protection Project in the Laguna Coastal Streams Watershed.

By diverting the dry season flows for reuse, standing water in the existing basin is reduced and as a result vector breeding habitats are also reduced. This provides a significant benefit of public health protection from vector borne disease for the South Orange County WMA.

The Projects in this proposal were carefully selected because of their integrated impacts on the South Orange County WMA for addressing critical water supply, water quality, and ecosystem protection needs.

V. Regional Map

The following Regional Maps are included in Att3_IG1_WorkPlan_2 of 4:

- Figure 1 – Regional Map – Watershed Management Areas and Watersheds.
- Figure 2 – Regional Map – Project Locations
- Figure 3 – Regional Map – Groundwater Basins
- Figure 4 – Regional Map – Surface Water Bodies
- Figure 5 – Regional Map – Disadvantaged Communities
- Figure 6.1 – Regional Map – Monitoring Location – South OC Water Smart Landscape Project (WSL) Project.
- Figure 6.2 – Regional Map – Monitoring Location – Rockledge Ocean Protection Project
- Figure 6.3 – Regional Map – Monitoring Location – Shadow Rock Detention Basin Project.

VI. Completed Work

Memorandums of Understanding and/or agreements would be executed between the County of Orange and each project proponent in order to be ready to proceed with projects upon grant agreement execution on June 1, 2011.

1. South Orange County Water Smart Landscape Project

The Municipal Water District of Orange County (MWDOC), retail water agencies, and cities have completed similar county-wide SmarTimer controller projects since October 2004, which support the efficient implementation of the proposed Project. This completed work supports the baseline data that will be used for project monitoring, once implemented. This previous experience also allows MWDOC to proceed with work prior

to grant award. Prior to grant award, MWDOC will move forward with the Project. Initial work would involve early preparation of the following:

Task 1: Project Administration: Coordination with the nine IRWM Cities, Establishing the cities participation requirements.

This project does not require design development because it is an implementation project for existing and developing Urban Areas and includes purchase and installation of landscape irrigation and plant material improvements on urban landscapes. Upon grant award, MWDOC will submit a categorical exemption – Class 1, Section 15301 – Existing Facilities. This filing is consistent with the determination of previous projects. The Project is ready to proceed upon grant award.

2. Rockledge Ocean Protection Project

The Rockledge Ocean Protection Project includes work that has been completed, including 90% Design and Specification development, and CEQA permitting. The Project obtained a categorical exemption because it is a public works improvement project for existing infrastructure. The Project is included in the City of Laguna Beach's Sewer Capital Improvement Program.

The County of Orange and the South Orange County Wastewater Authority have extensive baseline data for ocean water quality in the project area. Five years of ocean water bacteriological data, beach mile days and sanitary sewer overflow data will be utilized to characterize the site prior to construction. This data will be used to perform monitoring for the Project.

Prior to grant award, the City of Laguna Beach will have the following completed:

Task 4.1: Environmental Documentation: CEQA Categorical Exemption filing.

The Project is at 90% design completion and will proceed with completing 100% plans and specifications, bid and award, and construction upon grant award.

3. Shadow Rock Detention Basin Project.

Trabuco Canyon Water District (TCWD) has satisfied the necessary CEQA requirements for this project as of July 24, 2006 and completed a mitigated negative declaration, which requires a Mitigation Measuring and Monitoring Program (MMMP). The construction of the recycled water distribution pipeline in which the Project would connect to and the Project's preliminary site survey are complete, including the preliminary design work for the pump station.

Prior to grant award, TCWD will have the following completed:

Task 6: Environmental Documentation: CEQA Requirements, including Mitigated Negative Declaration.

VII. Existing Data, Studies and Technical Feasibility

1. South Orange County Water Smart Landscape Project

MWDOC has extensive experience implementing South Orange County region-wide studies. MWDOC has completed a significant body of research, through the Residential Runoff Reduction Study (July 2004) and, SmarTimer and Edgescape Evaluation Study (October 2008), that not only measures improvements from baseline data but also demonstrates our technical knowledge and experience to develop, manage and complete similar projects. Water conservation benefits taken from the studies include an 18% reduction in residential and a 22% reduction in commercial landscape water use, respectively. Water quality benefits include a significant reduction in both dry-weather runoff volume and non-point source pollutants entering local creeks ultimately leading to the Pacific Ocean. The Residential Runoff Reduction Study quantified a 50% reduction in dry-weather runoff and non-point source pollutants with a ten percent penetration of landscape improvements. Follow-up studies, 5-years post installation, are verifying that water savings have remained persistent.

Implementations of two small scale pilot projects similar to the proposed project have been successfully completed including the SmarTimer and Edgescape Evaluation Project (SEEP, 2007) and the Reserve Study (2009-10). A third larger scale project designed to refine program implementation methodologies is currently being implemented in anticipation of the proposed region wide program. MWDOC has sufficient technical data and experience to support the feasibility of the proposed Project.

2. Rockledge Ocean Protection Project

The Project will improve and replace its sewer collection system in the Rockledge neighborhood in the City of Laguna Beach. The project involves replacement of gravity sewer pipes and on sewer force main in addition to sewer lift station improvements. The Rockledge lift station is located on top of a bluff overlooking the Pacific Ocean. Historically, sewer spills originating from the Rockledge lift station flow directly into a rare, pristine and nearly inaccessible tide pools within a marine protected area. The marine reserve is currently part of the Laguna Beach State Marine Conservation Area (SMCA), which includes tidepools that are a complete no-take zone. The Marine Protection Area (MPA) is also a part of the proposed Laguna Beach State Marine Reserve that may go into effect mid 2011.

Based on historical information retained by the City of Laguna Beach, the existing system was built in 1932 and partially upgraded in 1945, 1958, 1961 and 1975. The pipelines, pumps and the station itself are at the age where their design life has been exceeded.

Failure of the existing lift station has caused several sewer spills through the years. As part of the City of Laguna Beach's Capital Improvement Study conducted in 2001-2002, all of the pipelines citywide were inspected and ranked for repair priority and the Rockledge sewer system is one of the highest priority lift stations for rehabilitation.

A minor slope wash in 2005 exposed and damaged the existing 6" CIP sewer line located in the easement on top of the cliff on the south of the lift station. The City repaired the damaged section of the sewer pipe and lined that segment of the sewer line as a stopgap measure to prevent seepage and spills. The City has inspected the entire pipeline system and identified the cleanouts and house connections related to the Project. Video inspection shows size and material of pipelines are not up to current standards with mixed pipe diameters, broken joints and sharp transitions. A second pump must also be installed for redundancy in the event of pump failure.

The County of Orange and the South Orange County Wastewater Authority have extensive baseline data for ocean water quality in the project area. Five years of ocean water bacteriological data, beach mile days and sanitary sewer overflow data will be utilized to characterize the site prior to construction.

Several monitoring programs have been established at numerous Orange County MPAs. Extensive research has been conducted on the Laguna Beach State Marine Conservation Area through the Orange County Marine Protected Areas Committee, as outlined below.

1. In 1996, the Multi-Agency Rocky Intertidal Network (MARINe) established four locations (Shaw's Cove, Treasure Island, Crystal Cove, and Dana Point) to monitor the abundances of target species. This network (http://www.marine.gov/), funded by various organizations including Minerals Management Services, US Department of Interior, spans across the California and Oregon coast encompassing 80 sites. For Orange County locations, California State University, Fullerton is currently monitoring the abundance of mussels (Mytilus), rockweeds (Silvetia), barnacles (Chthamalus and Balanus), red algal turfs (Endocladia), surf grasses (Phyllospadix), owl limpets (Lottia), seastars (Pisaster), and other important flora and fauna. Surveys of these areas are conducted every six months in the fall and spring seasons, starting in 1996 through the present.

2. The Orange County MPA monitoring programs was established in 2002 and continued until 2005. Surveys were conducted at three locations (Dana Point, Little Corona del Mar, and Treasure Island). Surveys were conducted to monitor the levels of human use and the abundances of various intertidal species including souvenir species likely to be most notably effected by human activities.

3. California State University, Fullerton has been surveying rocky intertidal flora and fauna at Dana Point and Little Corona Del Mar using transects from 2002 to the present. Percent cover of all species are measured along permanent transect spanning the entire intertidal habitat and are sampled approximately two times per year (summer and winter).

4. Weston Solutions, Inc. recently established transect lines to monitor at Little Corona del Mar, Morning Canyon, Crystal Cove, and Heisler Park.

5. Coastal Resources Management is currently quantifying and characterizing human activities in rocky intertidal zones at Little Corona del Mar, Morning Canyon, Crystal Cove, and Heisler Park.

6. The Montage Resort is supporting a monitoring program aimed to quantify levels of human use and determine the impacts of the resort on the rocky intertidal zone at Treasure Island.

   More information is available online at:
   http://www.ocmarineprotection.org/research.php

   The City of Laguna Beach, the County of Orange, and South Orange County Wastewater Authority have sufficient technical data and experience to support the feasibility of the proposed Project.

3. Shadow Rock Detention Basin Project

The Shadow Rock Detention Basin Dry Season Runoff Capture and Collection System Project includes modifying the existing detention basin facility to capture dry-season flows for recycled water supply. The existing Shadow Rock Detention Basin Facility is a man-made facility, which receives runoff from the Trabuco Highlands community and conveys it to the existing storm drain system. The proposed project would allow dry season low flows to be diverted from the existing basin to the recycled water system for reuse.

In October 2006, a study was completed by CH2MHill titled, *Shadow Rock Detention Basin Dry Season Runoff Capture and Collection System*. This technical report determined the facility would be designed to deliver 77-acre feet of stormwater annually. This report confirms the adequacy of the site location, project feasibility, and technical methods. Specifically, the report identified the major concerns of the existing conditions, including:

- Conveyance Structures and Water Flows - Currently, the site has multiple influent points including a primary stormwater channel, four stormwater v-ditches, and a subdrain. The primary channel and the subdrain each deliver low flows of approximately 20 gallons per minutes (gpm) (combined ~65 acre-feet/ year) and are the primary targets for treatment and capture by TCWD. The four v-shaped ditches and the primary channel are anticipated to deliver 77 acre-feet of stormwater annually (see Appendix 1, Shadow Rock Water Budget).
- Vector issues - The current wet detention basin has a relatively flat bottom with no direct flow-path deep channels or open water pools. As a result, the basin creates undesirable vector habitat (mosquito breeding ground). Establishing a clear flow path and deep pools will eliminate stagnant areas and create mosquito fish habitat, cost effectively controlling the current vector problem.
- Vegetation Maintenance - The constantly saturated basin maintains a constant water depth between 1 inch and 18 inches, without deep pools, which is the ideal range to promote vegetative growth. As a result of this configuration, the Shadow Rock Basin is a thick, dense monotypic stand of cattails in shallow water. To create a hierarchy in the hydraulic regime, THCA clears out paths within the vegetation. The maintenance cost of vegetation removal is costly and not aesthetically pleasing to the community.

On page 2 of the report, the required environmental documents were identified. Additionally, the report detailed required site modifications (water control structures, grading, vegetation) to construct dry-season recovery stations, construction phasing, maintenance requirements, and treatment performance modeling results.

The treatment performance modeling results included the following:

- The pollutant removal performance for the modified Shadow Rock Detention Basin was modeled using a first-order, empirical-area-based model described in Kadlec and Knight (1996).
- Model results showed significant expected removals of Nitrate and Total Phosphorus under the average conditions assumed for design (based on limited existing data).
- Appendix 3, Pollutant Removal for Recorded Values, summarizes water quality modeling results and modeled inflow/outflow rates. Because of the limited flow and water quality data, the pollutant removal model was run for a hypothetical future condition. This model run assumed 10x the volume of water as well as 10x the concentration of each of the modeled parameters.
- Appendix 3, sheet 2, Pollutant Removal for Hypothetical Values, summarizes water quality modeling results and modeled inflow/outflow rates.
- The results of this hypothetical run indicate that significant pollutant removal of up to 50 percent or more can occur with a combined increase of pollutant loads and flows.

In 2007, TCWD constructed the Dove Creek and Tick Creek Dry-Season Recovery Stations. These stations were designed to collect 250 gallons per minute of irrigation runoff for reuse in the recycled water system. The Shadow Rock Detention Basin will be designed to function similarly to these two stations. The District has personnel currently performing operations and maintenance for these existing stations and therefore, is equipped and able to operate and maintain the proposed Shadow Rock Detention Basin which will capture dry-season flows and convey them to the Dove Creek Station for distribution into the recycled water system. The Dove Creek and Tick Creek Stations have proven effective in capturing, collecting, and reusing runoff. TCWD has sufficient technical data and experience to support the feasibility of the proposed Project.

VIII. Project Map

See attached Figure 2 – Regional Map – Project Locations included as Att3_IG1_WorkPlan_2 of 4.

IX. Project Timing and Phasing

1. South Orange County Water Smart Landscape Project

This is a stand alone, independent operable project.

2. Rockledge Ocean Protection Project

This is a stand alone, independent operable project.

3. Shadow Rock Detention Basin Project

This is a stand alone, independent operable project.

WORK PLAN TASKS

1. South OC Water Smart Landscape Project (WSL Project)

a. **Project Summary:** The Municipal Water District of Orange County (MWDOC) proposes the implementation of a comprehensive landscape improvement program targeting publicly owned and other commercial landscapes properties throughout the South Orange County Integrated Regional Water Management Plan area. The WSL Project will encourage the removal of non-functional turf; upgrade antiquated irrigation timers to weather-based self-adjusting irrigation timers, and convert high-volume overhead spray irrigation to low-volume irrigation. These improvements will result in water savings, reduction of dry-weather runoff, pollution prevention, and reduced maintenance costs on both the landscape itself as well as asphalt street material. Just over 84 acres of existing landscape are targeted for improvement through this program. Expected water savings total more than 252 acre-feet per year or 5,018 acre-feet over the 20-year life of the landscape improvements. Dry-weather runoff reduction and non-point source pollution reduction are anticipated to be greater than 50% as was documented in MWDOC's Residential Runoff Reduction Study (2004).

The Project will emphasize participation of highly visible landscapes along major streets that have non-functional turf such as street medians, intersections, and sidewalk buffers. The Project is designed to begin establishing a landscape transformation paradigm from turf intensive landscapes to California Friendly landscapes that include plantings that have water needs similar to our natural rainfall or 12 inches of precipitation per year. These sites will serve to demonstrate California Friendly landscapes to the thousands of private and public property owners who will pass by the newly designed areas.

MWDOC will serve as the lead agency implementing the WSL Project in cooperation with the nine cities in the IRWM area. Letters of Support by the participating cities are included in Att3_IG1_WorkPlan_2 of 4. A Rebate Program format will be utilized to incentivize landscape improvements. Rebate incentives of $2.00 per verified square foot of improved landscape area will be provided to each project site. Up to 93% of the requested grant funds, along with the proposed acreage to be improved, will be allocated to the cities based on a combination of population and area served.

Upon start up of the WSL Project, cooperating cities will submit a MWDOC developed rebate application as well as a landscape renovation proposal that will clearly define the proposed landscape improvements. MWDOC will evaluate each of the proposals and those that meet the eligibility criteria of the WSL Project will be given a project specific notice to proceed document. MWDOC and City developed signage will be placed at each project site during and after the renovations to educate the public about the landscape improvements along with the many benefits that will be realized.

At the conclusion of each landscape improvement project, MWDOC will perform WSL Project landscape improvement verification inspections to assure the proposed improvements are completed. Using a combination of Natural Resource Conservation Service and MWDOC Staff, each site will be inspected to visually inspect, measure, take pictures, and verify all eligibility guidelines have been met.

During the final three quarters of the WSL Project, project benefits will be measured through a statistical water savings evaluation. This evaluation will include a robust, regression based, statistical evaluation of water use before and after the landscape improvements. Working with local water districts, MWDOC will obtain up to five years of pre and a minimum of one-year of post water use information for participating sites for inclusion in the evaluation. Following MWDOC's Administrative Code, a Request for Proposal (RFP) will be developed and submitted to qualified consultants. A committee of City and MWDOC staff and will be formed to review and select the most qualified submittal.

As lead agency, MWDOC will be responsible for the development and submittal of all required progress reporting. This will be accomplished as directed in the terms of the grant agreement. As part of the final reporting, MWDOC will also submit a bound version of the statistical evaluation of the water savings, the WSL Project database, and all photographic examples of the work performed.

b. Procedures for receiving grant funding: MWDOC will develop a standardized Memorandum of Understanding (MOU) for execution by each of the participating nine cities in order to formalize their participation in the WSL Project. The MOU will detail the criteria by which each landscape improvement site qualifies for participation in the project. The MOU will also specify the square footage, the amount of Matching funds, and the allocation of Grant funds that each of the cities will bring to the project.

c. Standards: In 2009, cities throughout Orange County updated their Landscape Ordinances in response to Assembly Bill 1881. This update established a Maximum Applied Water Allowance (MAWA) of 70% of the local evapotranspiration rate for all new single-family and commercial landscapes larger than 5,000 and 2,500 square feet respectively. The proposed project will use this design standard by replacing existing turf intensive landscapes with landscapes that meet or exceed the new MAWA.

d. Performance measures and monitoring plans: The performance measure that will be used to determine the effectiveness of the project will be a robust, regression based, statistical water savings evaluation of pre- and post-participation water use information. This evaluation will include weather normalization of pre and post retrofit water use. Monitoring will take place at the selected project sites throughout the WMA, as shown on Figure 6.1 – Regional Map – Monitoring Location – South OC Water Smart Landscape Project included in Att3_IG1_WorkPlan_2 of 4.

e. Acquisition and rights-of-way: The proposed project does not include land or rights-of-way acquisition.

f. Merits of building materials: The irrigation and landscaping materials to be used will include state of the art low-volume irrigation or emission methods including drip, sub-surface drip, micro-spray, or bubbler irrigation methods, weather responsive-self adjusting irrigation controllers, system-wide and valve based pressure regulation, and California Friendly-climate appropriate plant materials. Whenever possible, irrigation equipment that meets the Environmental Protection Agency's Water Sense labeling requirements for flow and performance will be used to maximize irrigation efficiency. In addition and in order to maximize water use efficiency, the smart timer technology used in the WSL Project will be equipment approved by the Irrigation Association (IA) for smart timer technology

g. Permitting: The Municipal Water District of Orange County will not be required to obtain permits to implement the proposed project however, cities receiving rebate incentives administered through the project, to facilitate landscape improvements, may require a landscape permit. Adherence to local permitting requirements will be a condition of receiving rebate incentives through a participation agreement between MWDOC and each city.

h. Environmental Documentation - Upon award MWDOC will submit a CEQA categorical exemption **–** Class 1, Section 15301 – Existing Facilities. This project is an implementation project for existing and developing Urban Areas. Tasks include purchase and installation of landscape irrigation and plant material improvements on urban landscapes. Activities for this project do not involve any new construction and there will be no disturbance to the environment, therefore, this project meets the standards for Categorical Exemption.

i. GWMP: South OC Water Smart Landscape Project (WSL Project) is not expected to have any direct or significant groundwater impacts.

j. Deliverables to DWR: MWDOC will coordinate with the County of Orange, the grant director, on any necessary reporting requirements for this project. MWDOC will serve as the grant project manager and will be responsible for the development of all required progress reporting and monitoring deliverables. Deliverables to DWR include the following:

- Data management and monitoring deliverables
- CEQA categorical exemption **–** Class 1, Section 15301 – Existing Facilities.
- A bound version of the statistical evaluation of the water savings, the WSL Project database, the project improvement verification forms, and all photographic examples of the landscape improvement work performed.

This will all be accomplished as directed in the terms of the grant agreement and submitted by the County of Orange to DWR on behalf of MWDOC.

k. Recent plans, studies, and specifications: MWDOC's Residential Runoff Reduction Study (July 2004) and the SmarTimer and Edgescape Evaluation Study (October 2008) have both demonstrated water conservation and water quality benefits. Water conservation benefits taken from the studies include an

18% reduction in residential and a 22% reduction in commercial landscape water use. Water quality benefits include a significant reduction in both dry-weather runoff volume and non-point source pollutants entering local creeks ultimately leading to the Pacific Ocean. The Residential Runoff Reduction Study quantified a 50% reduction in dry-weather runoff and non-point source pollutants with a ten percent penetration of landscape improvements. Follow-up studies, 5-years post installation, are verifying that water savings have remained persistent.

Implementations of two small scale pilot projects similar to the proposed project have been successfully completed including the SmarTimer and Edgescape Evaluation Project (SEEP, 2007) and the Reserve Study (2009-10). A third larger scale project designed to refine program implementation methodologies is currently being implemented in anticipation of the proposed region wide program.

The WSL Project does not require construction plan and specifications; therefore, none are submitted for this project.

Work Plan

Budget Category (a): Direct Project Administration Costs

Task 1: Project Administration

MWDOC will act as lead agency for implementation of this project. MWDOC staff has more than 27 combined years of experience implementing a variety of indoor and outdoor water use efficiency projects in Orange County.

Subtask 1 – Execute DWR Agreement

- Working with the County for Orange, MWDOC will review, provide comments, and execute the DWR Agreement.

Subtask 2 – Administration

- By dedicating a minimum of four hours per week across six Water Use Efficiency staff, MWDOC will manage the day-to-day implementation of this project from start to finish. This will include the following: coordination with DWR and the County of Orange on all Grant agreement issues; coordination with the nine IRWM Cities, establishing the cities participation requirements; establishing the WSL Project eligibility criteria; monitor the quality of work performed by the rebate and inspection contractors throughout the term of the project; coordinate all promotional material with the cities; prepare and submit reporting to DWR, the County and all participating funding partners; monitor and analyze the expected water conservation benefits; and develop and submit the water use evaluation and final project reports.

Deliverables: Preparation of invoices and other deliverables as required.

Task 2: Reporting

Subtask 1 – Quarterly Reporting

- MWDOC will prepare quarterly reports describing WSL Project implementation for the appropriate reporting period. Quarterly reporting, at a minimum, will include, a task by task report on progress achieved within the reporting period and from the start of the project; a written narrative that supports the

requested funding and details all activity, by task, for the quarter; a description of the estimated benefits to date; quarterly projections for all future work to be completed; the DWR invoicing document; all required backup documents; challenges and how they were overcome; any customer satisfaction issues; and any modifications made to the project.

Subtask 2 – Final Reporting

- MWDOC will also prepare a Final Project Report documenting implementation of the project including the number of residential and commercial SmarTimers installed; number and type of irrigation system improvements; marketing methods and associated performance; results of the water savings, runoff reduction, and pollution prevention evaluation; and lessons learned.

Deliverables: Submission of quarterly, annual and final reports as specified in the Grant Agreement.

Task 3: Assessment and Evaluation

Subtask 1 – Evaluation Technical Study

- An evaluation of the stated water use efficiency benefits will be conducted to determine the effectiveness of the project will include a robust, regression based, statistical water savings evaluation of pre- and post- water use information. Up to five years of pre-water use history and a minimum one-year of post site improvement water use history will be obtained from the participating water agency. Once the water use information is obtained, the data will be weather normalized and scrubbed in order to analyze the results. MWDOC, following its Administrative Code, will be develop a Request for Proposal (RFP) and submit the RFP to qualified consultants. A committee of City and MWDOC staff and will be formed to review and select the most qualified submittal.

Deliverables: Water Use Efficiency Evaluation Technical Study

Task 4: Environmental Documentation

Subtask 1 – Categorical Exemption Filing

- Upon award MWDOC will submit a categorical exemption **–** Class 1, Section 15301 – Existing Facilities. This project is an implementation project for existing and developing Urban Areas. Tasks include purchase and installation of landscape irrigation and plant material improvements on urban landscapes. Activities for this project do not involve any new construction and there will be no disturbance to the environment, therefore, this project meets the standards for Categorical Exemption.

Deliverables: Approved and adopted Categorical Exemption filing

Budget Category (d): Construction/Implementation

Task 5: Construction

Prior to starting the site improvements, MWDOC will develop and implement Subtasks 1 – 5 as listed below. Subtask 6 and 7 will be implemented once the individual landscape renovations begin.

Subtask 1 – City MOU

- MWDOC will develop a standardized Memorandum of Understanding (MOU) for execution by each of the participating nine cities in order to formalize its participation in the WSL Project. The MOU will detail the criteria by which each landscape improvement site qualifies for participation in the project. The MOU will also specify the square footage, the amount of Matching funds, and the allocation of Grant funds that each of the cities will bring to the project.

Subtask 2 – Eligibility Criteria

- The second item MWDOC will develop at this stage in the project will be the eligibility criteria that will guide each city in implementing its individual landscape improvement projects.

Subtask 3 – Project Application

- Once cities are ready to begin their individual improvement projects, cooperating cities will submit a MWDOC developed rebate application as well as a landscape renovation proposal that will clearly define the proposed landscape improvements. Working with each individual city, MWDOC will evaluate each of the proposals and those that meet the eligibility criteria of the WSL Project. Those projects that qualify will be given a project 'Notice to Proceed' document.

Subtask 4- Promotional Signage

- MWDOC and City developed signage will be placed at each project site during and after the renovations to educate the public about the landscape improvements along with the many benefits that will be realized.

Subtask 5 – Technology List

- Landscape improvement work that will be performed at each qualified site will include at a minimum the replacement of all non-essential turf grass with California Friendly or native plant species; the installation of weather-based self-adjusting irrigation 'smart' timers, and the conversion of high-volume overhead spray irrigation to low-volume irrigation rotating spray nozzles. It is proposed that just over 84 acres of inefficient landscapes will be improved into water efficient landscapes.

Subtask 6 – Issue Incentives for Landscape Renovations

- Once all landscape improvement work has been completed, and the post-improvement verification has been performed, and the site passes all final participation criteria, MWDOC proposes to provide, through a rebate format payment, an incentive of $2.00 per sq/ft. MWDOC's accounting department will be directed to distribute the incentive payments to the cities twice monthly.

Subtask 7 – Participant Database

- Furthermore, MWDOC will compile a database of all relevant data. This data at a minimum will include: site, city, and contact information; site improvement landscape data that will capture the work performed at each site; the make, model and quantity of the water efficient devices installed; the Grant and Matching funds expended at each site; and all relevant dates and check numbers.

Deliverables: Memorandum of Understanding for each participating city; Eligibility Criteria; Project Application; Copies of Site Improvement Proposals; Promotional Artwork of Project Signage; A list of the Approved Technologies; Final Participant Database

Budget Category (f): Construction Administration

Task 6: Construction Administration

At the conclusion of each landscape improvement project, MWDOC will perform WSL Project landscape improvement verification inspections to assure the proposed improvements are completed. This will include taking photographs of the improvements and the collection of onsite post –improvement data.

Subtask 1 – Site Photographs

- Post-completion photographs will be taken at each site

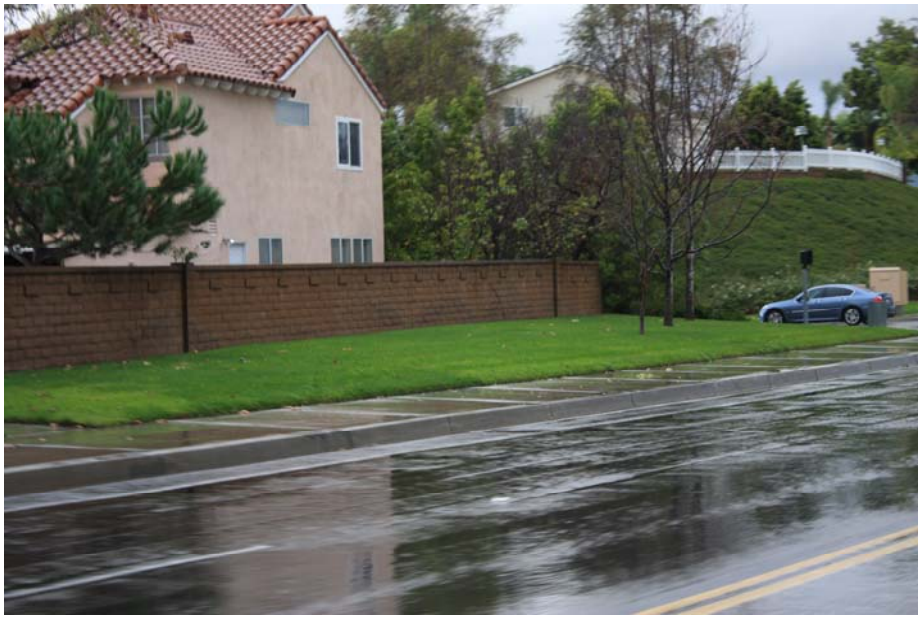
Subtask 2 – Verification Forms

- Using a combination of Natural Resource Conservation Service, MWDOC and City Staff, landscape improvement installation verifications will be performed to visually inspect, measure, and verify all project guidelines have been met. The information will first be collected on site verification forms and then databased in the project database.

Deliverables: Before and After Photographs, Project Improvement Verification Forms

The South OC Water Smart Landscape Project does not require a Labor Compliance Program, nor does the project include design, permitting, construction contracting, or environmental compliance tasks.

South OC WSL Project Photographs



Example of inefficient landscaping

Example of California friendly landscaping

Example of inefficient street landscaping/turf

Example of California friendly landscaping/turf replacement

2. Rockledge Ocean Protection Project

a. Project Summary: The City of Laguna Beach proposes the Rockledge Ocean Protection Project to improve and replace a sewer collection system in the Rockledge neighborhood. Specifically, the Project includes design completion and construction to replace sewer lift station, gravity sewer pipelines, force main sewer pipelines and lining of a gravity sewer pipe.

The Rockledge lift station is located on top of a bluff overlooking the Pacific Ocean. Sewer spills originating from the Rockledge lift station flow directly into the ocean in the midst of rare, pristine and nearly inaccessible tide pools in a marine protected area. The marine reserve is currently part of the Laguna Beach State Marine Conservation Area (SMCA), which includes tidepools that are a complete no take zone. The marine area is also a part of the proposed Laguna Beach State Marine Reserve that may go into effect mid 2011. The Rockledge Ocean Protection Project is one of the highest priority lift stations for rehabilitation in Laguna Beach according to the City's 2001-2002 Capital Improvement Study, in which all the pipelines Citywide were inspected and ranked. Funding constraints have prevented full rehabilitation of the Rockledge system.

The existing system was built in 1932 and partially upgraded in 1945, 1958, 1961 and 1975. The Rockledge sewer system is connected to the South Orange County Wastewater Authority (SOCWA). The sewer lines currently vary in pipe materials and diameters and have sharp, angled fittings. The existing lift station is small with only one pump which has caused several sewer spills through the years. A minor slope wash in 2005 exposed and damaged the existing 6" CIP sewer line located in the easement on top of the cliff on the south of the lift station. The City repaired the damaged section of the sewer pipe and lined that segment of the sewer line. The City has also inspected the entire pipeline system, identified and located the cleanouts and house connections to facilitate the project.

The County of Orange and the South Orange County Wastewater Authority have extensive baseline data for ocean water quality in the project area. Five years of ocean water bacteriological data, beach mile days and sanitary sewer overflow data will be utilized to characterize the site prior to construction.

The Rockledge Project is expected to produce long-term positive impacts in the adjacent waters of the Pacific Ocean in Laguna Beach. The Project will benefit 303(d) listed water bodies and beneficial uses within the Laguna Coastal Streams Watershed. It is anticipated that monitoring data will show a decrease in bacteria levels at the beach and a reduction in sewer spills from the station therefore demonstrating tangible benefits of the project on receiving waters. The City of Laguna Beach has completed environmental permitting and 90% design and is ready to proceed with final design plans and bid and award and construction upon grant award.

b. Procedures for receiving grant funding: The City of Laguna Beach will serve as the project manager and the County of Orange will serve as the grant director for the Rockledge Ocean Protection Project. The County of Orange will be the lead agency for the overall contract with the state and the City of Laguna Beach will provide all project reports, invoices, and other deliverables as required. The City will invoice as work progresses.

c. Standards: The City of Laguna Beach has completed 90% Design for the proposed Project, per the City's standards. The City of Laguna Beach will proceed with the construction bidding procedures and standards set forth by the City. As detailed in the City's Sewer System Management Plan (SSMP), the City enforces design and construction standards and specifications for the installation of new sanitary sewer systems, pump stations and other appurtenances; and for the rehabilitation and repair of existing sanitary sewer systems; as detailed in the American Public Works Association standard specifications ("Green Book") and California Building and Plumbing Codes as applicable. Laguna Beach Municipal Code references the requirements in multiple sections of Municipal Code – Titles 7, 14 and 17. The City has procedures and standards for inspecting and testing the installation of new sewers, pumps, and other appurtenances and for rehabilitation and repair projects to meet the requirements of the APWA "Green Book" and building codes. The design review process follows the City's established process for new construction or revitalization of existing structures. It includes: Laguna Beach Municipal Code Title 25 – Zoning, Uniform Building Code, City's General Plan, Appropriate Specific Plans, Local Coastal Plan, Zoning Map, Height, Guidelines, Environmental Maps. The proposed project will follow the City's construction standards and health and safety standards, as detailed in the SSMP, for project implementation.

d. Performance measures and monitoring plans: City will provide a project assessment plan, monitoring plan and quality assurance project plan. A Project Assessment and Evaluation Report (PAEP) will be completed to detail the methods of measuring and reporting project implementation and benefits. A Quality Assurance Project Plan (QAPP) in accordance with the SWRCB Surface Water Ambient Monitoring Program (SWAMP) and data reporting requirements will also be completed. The City may request coverage under the existing Orange County Stormwater Monitoring Program QAPP.

Additionally, a monitoring plan will be prepared consistent with the Public Resource Code and SWAMP, which will include a description of the monitoring objectives, types of constituents to be monitored and the sampling frequency and schedule for the monitoring activities. Monitoring will include physical, chemical and biological monitoring consistent with the California Ocean Plan. The City may request that monitoring be incorporated into the existing Orange County NPDES Stormwater Monitoring Program.

l. The City will utilize the County of Orange's database of ocean water and storm drain monitoring data for receiving waters. Over five years of monitoring data relevant to the Project have been collected in the City and water quality has steadily improved as the City has implemented an aggressive capital improvement program to replace aging sewer facilities and install storm drain

diversions. The Project's monitoring plans will assess the effectiveness of the project. Monitoring will take place at points north of and south of the project site, as shown on Figure 6.2 – Regional Map – Monitoring Location – Rockledge Ocean Protection Project included in Att3_IG1_WorkPlan_2 of 4.

e. Acquisition and rights-of-way:

No new acquisitions are required for this project.

f. Merits of methods: The Project's proposed sewer improvements made to the collection system in the Rockledge neighborhood include replacement of gravity sewer pipes and a sewer force main, and improvements to a sewer lift station. The merits of methods used for the construction materials will be consistent with the City of Laguna Beach's 2009 Sewer System Capital Improvement Plan (CIP) which states the merits of methods for sanitary sewer systems including:

- Evaluation: Evaluation of those portions of the sanitary sewer system that are experiencing or contributing to an SSO discharge caused by hydraulic deficiency. The evaluation provides estimates of peak flows (including flows from SSOs that escape from the system) associated with conditions similar to those causing overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events;
- Design Criteria: The City has established appropriate design criteria through the use of standard specifications for construction of sewer facilities; and
- Capacity Enhancement Measures: The steps needed to establish a short- and long-term CIP to address identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP includes increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities.

The City of Laguna Beach has completed 90% design for the proposed Project, per the City's standards and these documents are provided as attachments to this proposal. The City of Laguna Beach is ready to proceed with the construction bidding procedures and standards set forth by the City.

g. Permitting:

The project is included in the City of Laguna Beach's 2009 Capital Improvement Plan. As a Capital Project it is under the City engineer's purview and therefore, does not require permits from the City. The City will oversee all project construction and operations in compliance with the City's standards.

h. Environmental Documentation:

The project received a CEQA Categorical Exemption – 15301- Existing facilities, filed March 12, 2009.

i. GWMP: This Project does not involve and will not impact groundwater. A GWMP is not required.

j. Deliverables to DWR: The City of Laguna Beach will coordinate with the County of Orange, the grant director, on any necessary reporting requirements for this project. The City of Laguna Beach will serve as the grant project manager and will be responsible for the development of all required progress reporting and monitoring deliverables. Deliverables to DWR include the following:

- Required progress reporting
- PAEP
- QAPP
- Data management and monitoring deliverables.

This will all be accomplished as directed in the terms of the grant agreement and submitted by the County of Orange to DWR on behalf of the City of Laguna Beach.

k. Recent Plans, Studies, and Specifications: The proposed Rockledge Ocean Protection Project was included in the City's 2009 Sewer Strategic Plan and Ten Year Sewer Capital Improvement Plan (2009). The design phase is 90% complete and the plans and specifications are provided as Att3_IG1_WorkPlan_3 of 4.

Work Plan
Budget Category (a): Direct Project Administration Costs
Task 1: Administration 1.1 The County of Orange will administer the Grant contract as the south Orange County IRWMP lead agency. 1.2 The City of Laguna Beach will be the project manager responsible for implementation of the project grant contract elements and coordination with the County of Orange, including administration and work to be performed. 1.3 Labor Compliance Program- During this project, the City will work with a Labor Compliance Consultant to develop a Labor Compliance Program. Deliverables: Invoices and Labor Compliance Program
Task 2: Reporting 2.1 Prepare quarterly progress reports for the County of Orange for submittal to the SWRCB project representative per the grant agreement. The progress report will describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work under the grant agreement. The description of activities and accomplishments of each task during the quarter shall be in sufficient detail to provide a basis for payment of invoices and shall be translated into percent of task work completed for the purpose of calculating invoice amounts.

2.2 Prepare a draft final report for the County of Orange that summarizes project accomplishments and submit to SWRCB's project representative for review and comment. The report will include the following requirements:

a. An introduction section including a summary of the conditions the project is meant to alleviate, the project's objective, the scope of the project, and a brief description of the approach and techniques used during the project.
b. A list of task products previously submitted as outlined in the Schedule of Completion.
c. Any additional information that is deemed appropriate by the SWRCB's Project Representative and/or Contractor Project Representative.
d. Indicate whether the goals of the project have been met.
e. Include information collected in accordance with the project Monitoring and Reporting Plan, including a determination of the effectiveness of the project in preventing or reducing pollution and the results of the monitoring program.

2.3 Prepare a final report that addresses the draft final report comments by the SWRCB.

Deliverables: Submission of quarterly, annual and final reports as specified in the Grant Agreement.

Budget Category (c): Planning/Design/Engineering/Environmental Documentation

Task 3: Assessment and Evaluation

3.1 Prepare a Project Assessment and Evaluation Report (PAEP) to detail the methods of measuring and reporting project benefits.

3.2 Prepare a Quality Assurance Project Plan (QAPP) in accordance with the SWRCB Surface Water Ambient Monitoring Program (SWAMP) and data reporting requirements. The City may request coverage under the existing Orange County Stormwater Monitoring Program QAPP.

3.3 Prepare a monitoring plan consistent with the Public Resource Code and SWAMP, which will include a description of the monitoring objectives, types of constituents to be monitored and the sampling frequency and schedule for the monitoring activities. Monitoring will include physical, chemical and biological monitoring consistent with the California Ocean Plan. The City may request that monitoring be incorporated into the existing Orange County NPDES Stormwater Monitoring Program.

Deliverables: Monitoring Plan, Completed QAPP, Completed PAEP and other data management and monitoring deliverables as required.

Task 4: Environmental Documentation

4.1 CEQA Categorical Exemption filing for the project is complete. Tribal Notification requirements will be fulfilled during this task. However, since this project is categorically exempt, and therefore not considered a Project under CEQA, tribal notification may not be required.
4.2 Submit Fish and Game receipt.
4.3 Conduct pre and post-construction monitoring as described in SWRCB approved project QAPP, PAEP, and Monitoring Plan.

Deliverables: Approved and adopted CEQA/NEPA documentation, F&G Receipt

Task 5: Final Design

5.1 Complete design of the Rockledge Ocean Protection Project. 90% design plans will be finalized as 100% design plans as part of this task. Design Plan phase includes:

- Survey
- Utility Research
- Sewer Improvements
- Traffic Control
- Caltrans Processing
- Cost Estimate
- Specifications
- As-Built Plans
- Monument Restoration
- Construction Assistance
- Engineering
- Potholing and Field Survey

Deliverables: 100% Project Design Plans and Specifications

Budget Category (d): Construction/Implementation

Task 6: Construction Contracting

6.1 Bid and award – Bid and Award a construction contract in accordance with the City of Laguna Beach construction bidding procedures and standards for various services described to complete construction of the Rockledge lift Station Project.

The construction work, methods and materials must be completed in accordance the City of Laguna Beach construction standards and with the provisions of the latest edition of the Standard Specifications for Public Works Construction (Green Book) standards. The specific units, quantities, materials etc. for each improvement will be included in the final plans and specification document.

6.2 Construction Management and Inspection - Provide construction management and inspection services in support of construction to ensure proper construction practices are followed according to all applicable construction plans, construction standards, and health and safety codes.

- Provide construction survey (staking), and geotechnical services in support of the construction activities.
- Complete all necessary construction activity notifications to utility owners by submitting final construction drawings. Complete public notification and education as directed by the City for the surrounding construction area.

Deliverables: Bid Documents and Contract for Construction.

Task 7: Construction

The Construction portion of this project involves the following subtasks:

7.1Mobilization and Site Preparation –

- Procure contractor bonds and insurances

- Mobilization of temporary facilities at the project site
- Provide pollution prevention and erosion control at the project site
- Implementation of all safety requirements
- Provide any necessary onsite surveys.
- Conduct any land grading and/or dewatering, as necessary to facilitate the construction of this project.

7.2 Construction –

The Project Construction portion of this project includes the construction and installation of the following items:

- Traffic Control
- Replace Existing Sewer Lines
- Line Existing 6”CIP Sewer Line
- Construct Stairway, Sidewalk, Handrail
- Electrical
- Potable Water
- Pump House Modifications
- Pump and Equipment
- Construction Staking
- Storm Drains
- Provide Portable Hoist

7.3 Performance Testing and demobilization -
Perform the necessary testing of the operational equipment, and site demobilization includes the removal of all temporary facilities at the project site.

Deliverables: As-builts/Record Drawing, O&M Manuals, Final Site Survey/Map.

The Rockledge Ocean Protection Project does not include permitting, environmental compliance or construction administration tasks.

Rockledge Ocean Protection Project - Photographs

Rockledge – Dolphins in Laguna Beach State Marine Conservation Area (SMCA) and no take zone tidepools.

Rockledge – View from Cliff

Rockledge Ocean Protection Project - Photographs

Rockledge Sewer System Pump

Rockledge –Laguna Beach State Marine Conservation Area (SMCA) and no take zone tidepools.

3. Shadow Rock Detention Basin Facility Urban Water Recovery Project

a. Summary:

Trabuco Canyon Water District (TCWD) in partnership with the City of Rancho Santa Margarita proposes to improve the existing Shadow Rock Detention Basin. The Shadow Rock Detention Basin currently receives runoff from the Trabuco Highlands community and conveys it to the existing storm drain system. TCWD proposes to modify the Shadow Rock Detention Basin to treat and capture low-flow runoff for reuse. In addition, the proposed improvements would create a less vector-prone site and provide increased nutrient consumption without negatively impacting the current design of the storm drain system and detention basin.

Captured dry-season flows will be pumped to a separate existing storm drain located approximately 1,300 feet from Shadow Rock Basin and redirected to Dove Lake. Dove Lake is a man-made reservoir connected to the recycled water system that TCWD currently utilizes to convey treated dry-season flow to its recycled water system. In this way, captured runoff from Shadow Rock Detention Basin will be redirected to the recycled water system. The Santa Margarita Water District is a user of TCWD's recycled water system, and therefore, the supplemental recycled water supply will benefit their service area as well. TCWD has an agreement with the Trabuco Highlands Community Association (THCA) to operate and maintain Shadow Rock Detention Basin for the community.

Specifically, the proposed Project improvements consist of modifications to an existing storm flow detention basin facility, a below grade pump station, and the installation and tie-in of approximately one hundred feet of new pipeline to the existing pipeline infrastructure along a TCWD easement.

b. Procedures for receiving grant funding

TCWD will coordinate with the County of Orange, the grant director, on any necessary reporting requirements for this project. TCWD will serve as the grant project manager.

c. Standards

TCWD will oversee Project implementation and ensure compliance with TCWD's General Policy and Rules and Regulations, Adopted March 16, 2005. Section 5.5 includes Development and Design Criteria and Standard Drawings for Water and Sewer Facilities. The Standards include Design Criteria that provide a uniform and consistent method of regulating and guiding the design and preparation of plans for constructed facilities; and, of insuring proper installation of all private works involving water/wastewater services. Design Criteria and Standard Drawings for Water and Sewer Facilities are maintained by the District. The Design Criteria also provides standards for the water/wastewater improvements and private works to be dedicated to the public and accepted by the District for operation and maintenance.

Per the Design Criteria, items or situations shall be designed and/or constructed in accordance with accepted engineering practice, the State of California "Standard Specifications" and "Highway Design Manual", respective City or County design criteria as determined by locale, Standard Specifications for Public Works Construction (Green Book), and as required by the District authorized Engineer.

TCWD's Project will conform to all necessary construction, health and safety, and laboratory analysis standards during the construction of this project.

d. Performance measures and monitoring plans.

Current runoff flows into the Shadow Rock Detention Basin Facility are measured on a daily basis. Performance measures include monitoring of captured dry season flows, visual verification, water quality measurement/analysis. Monitoring plans will include flow measurement and recording. Measurable targets include 77 acre-feet per year of captured dry season flows, reduced usage of pesticides for vector control, improved water quality, and reduction in urban water runoff. Monitoring will take place at the pump location as detailed on the project plan, as shown on Figure 6.3 – Regional Map – Monitoring Location – Shadow Rock Detention Basin Project included in Att3_IG1_WorkPlan_2 of 4.

e. Acquisition and rights-of-way

TCWD has coordinated an easement with Trabuco Highlands Community Association (THCA) for the project, with full access to the site for operation and maintenance purposes. TCWD is in the process of obtaining an easement with Southern California Edison in order to deliver electrical power to the site.

f. Merits of methods

Per the 2006 CH2MHill study titled, "*Shadow Rock Detention Basin Dry Season Runoff Capture and Collection System*", the Construction Phasing of the project includes the established approach of using a Biological Survey for the existing onsite vegetation and natural materials, as well as a Hydraulic Model for Stormwater Analysis and Facility Modifications.

The Study also applied treatment performance modeling, including the following:

- The pollutant removal performance for the modified Shadow Rock Detention Basin was modeled using a first-order, empirical-area-based model described in Kadlec and Knight (1996).
- Model results showed significant expected removals of Nitrate and Total Phosphorus under the average conditions assumed for design (based on limited existing data).
- Because of the limited flow and water quality data, the pollutant removal model was run for a hypothetical future condition. This model run assumed 10x the volume of water as well as 10x the concentration of each of the modeled parameters.
- Pollutant Removal for Hypothetical Values, summarizes water quality modeling results and modeled inflow/outflow rates.

- The results of this hypothetical run indicate that significant pollutant removal of up to 50 percent or more can occur with a combined increase of pollutant loads and flows.

Based on this model and overall study, the proposed Project was developed with sound technical methods and applied analysis. Design drawings for the existing Shadow Rock Detention Basin are completed and are provided in the proposal. The Project design and bid solicitation for the proposed basin modifications are not completed.

g. Permitting

The status of all necessary permits is as follows:

- The California Department of Fish and Game permits will be submitted three to four months following submittal
- The City of Rancho Santa Margarita requires implementation of NPDES activities, and currently, has ongoing compliance under NPDES Order No. CAS0108740.
- Regional Water Quality Control Board (RWQCB) 401 Certificate for a man-made detention basin facility will be submitted three to four months following submittal. A General Construction Permit will be effective upon submittal of Notice of Intent (NOI) and a draft Storm Water Pollution Prevention Plan (SWPPP)
- Environmental Documentation - CEQA/NEPA
- On July 24, 2006, TCWD satisfied CEQA requirements for this project. On August 16, 2006, TCWD completed a Mitigated Negative Declaration and included a Mitigation Measuring and Monitoring Program.

h. Environmental Documentation

Required environmental documentation is detailed under Permitting.

i. GWMP, if required.

The Project will not impact a groundwater basin. Therefore, this is not applicable.

j. Deliverables to DWR: Trabuco Canyon Water District will coordinate with the County of Orange, the grant director, on any necessary reporting requirements for this project. Trabuco Canyon Water District will serve as the grant project manager and will be responsible for the development of all required progress reporting and data management and monitoring deliverables. Deliverables to DWR include the following:

- Quarterly, Annual, and Final Data Collection Reports, furnished by TCWD
- Financial Reports, furnished by TCWD Consultant

This will all be accomplished as directed in the terms of the grant agreement and submitted by the County of Orange to DWR on behalf of TCWD.

k. Recent Plans, Studies, and Specifications:

- Recent Project design drawings/plans, provided as part of this proposal are included in Att3_IG1_WorkPlan 4 of 4.
- CH2MHill Technical Memorandum dated October 13, 2006, titled "*Shadow Rock Detention Basin Dry Season Runoff Capture and Collection System*".

Work Plan
Budget Category (a): Direct Project Administration Costs
Task 1: Administration 1.1 The County of Orange will administer the Grant contract as the South Orange County IRWM Plan lead agency. 1.2 TCWD will be the project manager responsible for implementation of the Shadow Rock Detention Basin Facility Urban Water Recovery Project contract elements and coordination with the County of Orange, including development and execution of grant and administration agreements, administration and work to be performed. 1.3 Contracts Administration by TCWD includes preparation of staff reports to the Board of Directors, contracts administration, accounting management, issuance of purchase orders, review of invoices and progress payments, project close out documentation and legal counsel which includes the preparation of the Memorandum of Understanding. Deliverables include: Preparation of invoices and other deliverables as required.
Task 2: Project Reports TCWD will prepare, complete, and submit Quarterly, Annual, and Final Data Collection Reports, as well as Quarterly, Annual, and Final Financial Reports, as specified in the Grant Agreement. Deliverables include: Submission of quarterly, annual, and other data management and monitoring deliverables as required. Final reports as specified in the Grant Agreement
Budget Category (b): Land Purchase/Easement
Task 3: Easements TCWD has coordinated an easement with THCA on this property for the project, with full access to the site for operation and maintenance purposes. TCWD is in the process of obtaining an easement with Southern California Edison in order to deliver electrical power to the site.
Budget Category (c) Planning/Design Engineering/Environmental Documentation

Task 4: Assessment and Evaluation

TCWD plans to complete the following for the project:
Assessment and Evaluation – This task includes project siting and the layout of major facilities. No specifications are provided. Hydraulic analysis has been started and is nearing completion. Background geotechnical investigation and a report has been performed. Review of the project by the lead agency and the County of Orange Vector Control review will be complete. The work products are equivalent to a preliminary design.

Deliverables include: Technical Memorandum/Reports or Map

Task 5: Final Design
TCWD will prepare/contract with a consultant to prepare the Project Design Drawings, Specifications, and Final Bid Documents.

50 % (Concept) Design – The 50% design shows project siting and all project appurtenances. Detail is provided for civil, electrical, mechanical, and geotechnical. Standard details and outline specifications for technical portion, are provided. Hydraulic and process design analysis should be updated and completed at this stage. A biological and on-site materials survey will have been started and nearing completion.

90% (Pre-final) Design – The 90% design is the final, unstamped, submittal. Complete plans and specifications are prepared, and a detailed itemized cost estimate is included. Submittal of final biological and on-site survey.

100% (Final) Design – The 100% design is the design package that will be advertised for project award for construction/implementation of project. The package consists of the complete, signed, and "As-Advertised" plans and specifications.

Deliverables: Completion of project plans and specifications at the 50 percent, 90 percent and final bid documents.

Task 6: Environmental Documentation
TCWD has satisfied the necessary CEQA requirements for this project as of July 24, 2006. Also, TCWD completed a Mitigated Negative Declaration which included a Mitigation Measuring and Monitoring Program (MMMP) as of August 16, 2006.

Deliverable: Approved and adopted CEQA documentation, including MMMP.

Budget Category (d): Construction/Implementation

Task 7: Construction Contracting
The Construction Contracting portion of the project includes the following:

- Preparation of the Bid Forms, Contract, Insurance, and Bond Forms;
- Ensure fair and proper bidding advertisements;
- Conduct pre-construction conferences and contractor site visits;
- Review Design Engineer submissions;
- Evaluate all timely submitted bids and subsequently, award the contract.

Deliverables: Advertisement for bids; pre-bid contractors meeting; evaluation of bids, award contract.

Task 8: Construction
The Construction portion of this project involves the following subtasks:

Subtask 8.1 Mobilization and Site Preparation
Mobilization and Site Preparation includes the following:

- Procure contractor bonds and insurances
- Mobilization of temporary facilities at the project site
- Provide pollution prevention and erosion control at the project site
- Implementation of all safety requirements
- Provide any necessary onsite surveys.
- Work with Southern California Edison to establish electrical power for the site, whic includes the installation of a transformer.
- Conduct any land grading and/or dewatering, as necessary to facilitate the construction of this project.

Subtask 8.2 Construction
The Project Construction portion of this project includes the construction and installation of the following items:

- Detention Basin grading and site Rip/Rap
- Yard Piping
- Concrete V-Ditch
- Shadow Rock Pump Station Mechanical and Electrical Controls
- Pump Station construction
- Provide final 'As-Builts'/Record Drawings
- Provide Operation and Maintenance Manuals
- Submit Final Site Survey/Map

Subtask 8.3 Performance Testing and demobilization
Perform the necessary testing of the operational equipment, and site demobilization includes the removal of all temporary facilities at the project site.

Deliverables: As-builts/Record Drawing, O&M Manuals, Final Site Survey/Map.

Budget Category (e): Environmental Compliance/Mitigation/Enhancement

Task 9: Environmental Compliance/Mitigation/Enhancement
Ensure environmental compliance through hydro-seeding or planting, as necessary, and implement the developed Mitigation Measuring and Monitoring Program (MMMP).

Deliverable: MMMP

Budget Category (f): Construction Administration

Task 10: Services During Construction
Services during Construction - Conduct the following services during Construction Administration portion of this project:

- Construction Management
- Site Inspection Services

- Engineering submittals, including the review and processing of RFI's
- Generate an Operations and Start-up Plan for the facility.
- Geotechnical Testing and Inspections shall be provided by a Third-Party consulting Geo-Technical Engineer, as necessary.

Deliverables: Operations and Start-up Plan, and other documents as required.

Task 11: Labor Compliance

Labor Compliance Program- During this project, TCWD will work with a Labor Compliance Consultant to develop a Labor Compliance Program.

Deliverables include: Submission of Labor Compliance Program

Budget Category (g): Other

Task 12: Permits

See table below:

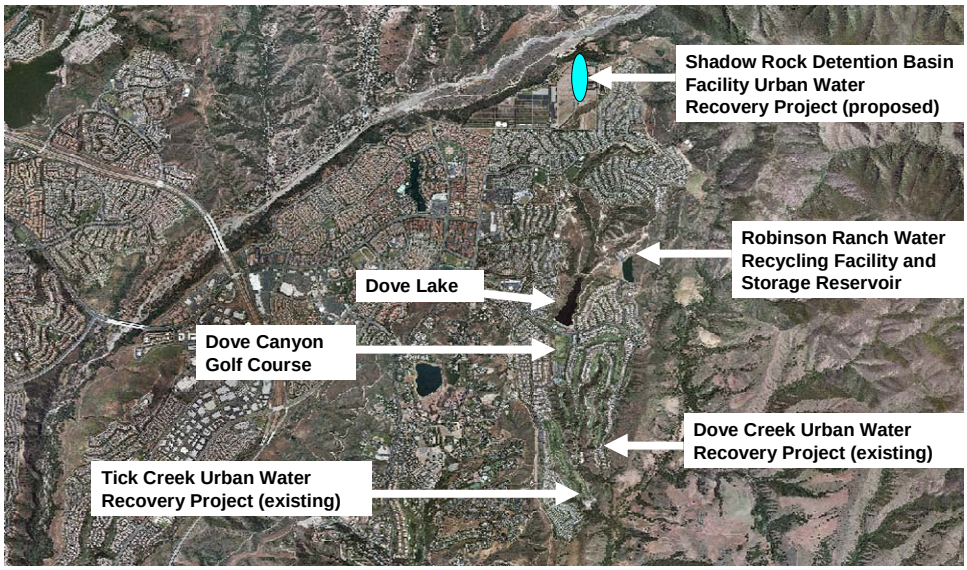
The status of all necessary permits is as follows:

Agency/Entity and Contact	Documentation or Permit/Approval	Comments	Timeline
California Department of Fish and Game (CDFG) Contact: South Coast Region Contact Line Phone: (858) 636-3160	CDFG Code, 1600 Streambed Alteration Agreement (SAA). For activities within Shadow Rock Detention Basin[1] and for diversion of flow from the open channel that is located directly downstream of the existing outfall structure.	Activities within the manmade basin would require an SAA. CDFG may include Shadow Rock Detention Basin as part of their SAA jurisdiction; SAA application should make the case that the manmade detention basin is strictly a flood control/stormwater facility and that Project activities within the detention basin should not be regulated by CDFG. Additionally, Fish and Game Code 1602 requires an SAA for activities that affect streams, including those that obstruct or divert flow.	3 – 4 months following submittal
City of Rancho Santa Margarita Contact: Tom Wheeler City Engineer (949) 635-1800	NPDES Permitting Process Grading Permit Encroachment Permit	City of Rancho Santa Margarita requires implementation of NPDES activities and reports to the San Diego RWQCB under its NPDES Order No. CAS0108740	Ongoing compliance with NPDES Order No. CAS0108740
Regional Water Quality Control Board, San Diego Region (RWQCB) Contact: Megan Quigley, 401 Coordinator Phone: (858) 268-5363	Clean Water Act Section 401 Water Quality Certification (401 Cert.). For excavation and fill activities within Shadow Rock Detention Basin.	Excavation and fill of manmade basin would require a 401 Cert. RWQCB may include Shadow Rock Detention Basin as part of their 401 Cert. jurisdiction; 401 Cert. application should make the case that the man-made detention basin is strictly a flood control/stormwater facility and that Project activities within the detention basin should not be regulated by RWQCB.	3 – 4 months following submittal
Regional Water Quality Control Board, San Diego Region (RWQCB) Contact: General Permit Question Line Phone: (916) 341-5537	Clean Water Act Section 402 National Pollutant Discharge Elimination Permit (NPDES) General Construction Stormwater Activity Permit; required for land disturbance greater than 1 acre.	Typically, the General Construction Stormwater (NPDES) Permit would be identified in the contract documents as the responsibility of the Contractor. This includes preparation of a Storm Water Pollution Prevention Plan (SWPPP).	Effective upon submittal of Notice of Intent (NOI) and draft SWPPP.
United States Army Corps of Engineers (USACE)	Clean Water Act Section 404 Permit. For excavation and fill activities within Shadow Rock Detention Basin.	It is not expected that USACE would assert 404 jurisdiction over the Shadow Rock Detention Basin; USACE generally excludes manmade facilities.	3 – 4 months following submittal
Trabuco Highlands Community Association (THCA) Contact: Cathy Acquazzino Phone: (949) 582-7770	Approval from THCA to improve Shadow Rock Detention Basin.	Coordinate with THCA to determine approval requirements.	**Completed**

Deliverables: Required Permits may include the following: Section 1602, 404, 402, NPDES, etc.

Shadow Rock Detention Basin Project – Photographs

Trabuco Canyon Water District Urban Water Recovery System



Shadow Rock Detention Basin Facility – North

Shadow Rock Detention Basin Project – Photographs

Dove Creek Urban Water Recovery Project – Example of similar completed project.

Dove Lake – Reservoir for Recycled Water Supply

Tick Creek Urban Water Recovery Project – Example of similar completed project.